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SIXTEENTH AND SEVENTEENTH ANNUAL REPORTS

OF THE TRUSTEES

OF THE

PEABODY MUSEUM

OF

AMERICAN ARCHÆOLOGY AND ETHNOLOGY.

PRESENTED TO THE PRESIDENT AND FELLOWS OF
HARVARD COLLEGE.

VOL. III. NOS. 3 AND 4.

CAMBRIDGE:
PRINTED BY ORDER OF THE TRUSTEES.
1884.

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CONTENTS.

List of Trustees and Officers of the Museum 152

Letter of the Trustees to the President and Fellows of Harvard College 153

Abstract from the Records, 1883 154

Sixteenth Report of the Treasurer 155
Cash Account of the Curator 156

List of Subscribers in aid of Archæological and Ethnological Research in America 158

Sixteenth Report of the Curator 159
List of Additions to the Museum during the year 1882 . 193
List of Additions to the Library during the year 1882 203

On the Social and Political Position of Woman among the Huron-Iroquois Tribes. By Lucien Carr, Ass't Curator . 207

Notes upon Human Remains from Caves in Coahuila, Mexico. By Cordelia A. Studley, Assistant in the Museum . . . 233

The White Buffalo Festival of the Uncpapas. By Alice C. Fletcher 260

The Elk Mystery or Festival of the Ogallala Sioux. By Alice C. Fletcher 276

The Religious Ceremony of the Four Winds as observed by the Santee Sioux. By Alice C. Fletcher 289

The Shadow or Ghost Lodge; a Ceremony of the Ogallala Sioux. By Alice C. Fletcher 296

The Wa-wan, or Pipe Dance of the Omahas. By Alice C. Fletcher 308

Abstract from the Records, 1884 334

Seventeenth Report of the Treasurer 335
Cash Account of the Curator 336

Seventeenth Report of the Curator 339
List of Additions to the Museum during the year 1883 368
List of Additions to the Library during the year 1883 376

Report on the Meteoric Iron from the Altar Mounds in the Little Miami Valley. By Leonard P. Kinnicutt, Ph. D. 381

PEABODY MUSEUM

OF

AMERICAN ARCHÆOLOGY AND ETHNOLOGY

IN CONNECTION WITH

HARVARD UNIVERSITY.

FOUNDED BY GEORGE PEABODY, OCTOBER 8, 1866.

TRUSTEES.

ROBERT C. WINTHROP, Boston, 1866. *Chairman.*

CHARLES FRANCIS ADAMS, Quincy, 1866; *resigned*, 1881.

FRANCIS PEABODY, Salem, 1866; *deceased*, 1867.

STEPHEN SALISBURY, Worcester, 1866. *Treasurer*, 1866–1881.

ASA GRAY, Cambridge, 1866. *Pro tempore Curator of the Museum*, 1874.

JEFFRIES WYMAN, Cambridge, 1866; *deceased*, 1874. *Curator of the Museum*, 1866–1874.

GEORGE PEABODY RUSSELL, Salem, 1866; *resigned*, 1876. *Secretary*, 1866–1873.

HENRY WHEATLAND, Salem, 1867. Successor to Francis Peabody, as President of the Essex Institute. *Secretary*, 1873.

THOMAS T. BOUVÉ, Boston, 1874–1880. Successor to Jeffries Wyman, as President of the Boston Society of Natural History.

THEODORE LYMAN, Brookline, 1876. Successor to George Peabody Russell, by election. *Treasurer*, 1881–1882.

SAMUEL H. SCUDDER, Cambridge, 1880. Successor to Thomas T. Bouvé, as President of the Boston Society of Natural History.

JOHN C. PHILLIPS, Boston, 1881. Successor to Charles Francis Adams, by election. *Treasurer*, 1882.

OFFICERS OF THE MUSEUM.

FREDERICK WARD PUTNAM, *Curator*, 1875.

LUCIEN CARR, *Assistant Curator*, 1877.

MISS JENNIE SMITH, *Assistant*, 1878.

MISS C. A. STUDLEY, *Assistant*, 1882.

EDWARD E. CHICK, *Assistant in charge of the Building*, 1878.

SIXTEENTH AND SEVENTEENTH REPORTS.

To the President and Fellows of Harvard College:—

The Trustees of the Peabody Museum of American Archæology and Ethnology herewith respectfully communicate to the President and Fellows of Harvard College, as their Sixteenth and Seventeenth Annual Reports, the Reports of their Curator and Treasurer presented at the Annual Meetings, February 17, 1883, and February 18, 1884.

ROBERT C. WINTHROP,
STEPHEN SALISBURY,
ASA GRAY,
HENRY WHEATLAND,
THEODORE LYMAN,
SAMUEL H. SCUDDER,
JOHN C. PHILLIPS.

Cambridge,
March 31, 1884.

ABSTRACT FROM THE RECORDS.

SATURDAY, FEBRUARY 17, 1883. The Annual Meeting of the Board of Trustees was held this day at noon, in the Rooms of the Massachusetts Historical Society, Boston. Present: Messrs. WINTHROP, SALISBURY, GRAY, WHEATLAND, LYMAN, SCUDDER, PHILLIPS, and the CURATOR.

The TREASURER stated that in accordance with the vote at the last meeting the funds had been reinvested, as shown in his report which was read and accepted, and ordered to be printed as a part of the Sixteenth Report of the Trustees.

The CURATOR'S cash account, audited by Col. LYMAN, was accepted and ordered to be printed.

The CURATOR having sent copies of his Annual Report, in proof, to each member of the Board, the report was accepted and ordered to be printed.

The CURATOR then gave a *résumé* of the explorations in the Little Miami Valley, illustrating his remarks by plans, diagrams and specimens. As an acknowledgment of the importance of these explorations, the CURATOR was requested to prepare a full account of them, with the necessary illustrations, for publication by the Museum.

The TREASURER stated that he had received subscriptions for archæological research to the amount of $900, in addition to the sum announced at the last meeting, and he was authorized to pay the amount to the CURATOR for the continuation of the explorations.

The CURATOR called attention to the subscriptions amounting to $775, which he had received in aid of Miss Fletcher's researches among the Indians and for general purposes, as stated in his cash account.

The TREASURER was authorized to pay to the CURATOR the accruing income for the year to be expended for the several purposes as heretofore.

Col. LYMAN was appointed auditor of the accounts of the Treasurer and Curator.

Voted, That the Board make a visit to the Museum and hold a business meeting there at such time as the PRESIDENT shall appoint.

The Board then adjourned.

HENRY WHEATLAND,
Secretary.

REPORT OF THE TREASURER.

To the Trustees of the Peabody Museum of American Archæology and Ethnology in connection with Harvard University:

The TREASURER respectfully presents the following Annual Report:—

He has sold the Fifteen Massachusetts Coast Defence specie notes each for $10,000, dated July 1, 1863, due July 1, 1883, the gift of GEORGE PEABODY, for $150,937 50. And he has purchased,

1882	*On Account of Building Fund.*		
Nov.	$62,000 Chicago, Burlington and Quincy R. R., Denver Extension 4 per cent. Bonds at $80	$49,600 00	
	Brokerage	77 50	
Dec.	$9,000 Pueblo and Arkansas R. R. 7 per cent. Bonds	10,322 50	
			$60,000 00
	On Account of Museum Fund.		
Dec.	$54,000 Kansas and Missouri 5 per cent. Bonds at 92½	49,950 00	
"	$36,000 Pueblo and Arkansas Valley R. R. 7 per cent. Bonds	40,723 75	
1883			
Feb. 17,	Cash uninvested	263 75	
			$90,937 50
			$150,937 50

Income Account.

1882			
July.	Received 6 months interest on $150,000 Mass. 5 per cent. Bonds	$3,750 00	
Nov.	" 4 months, 24 days interest on $50,000 Mass. 5 per cent. Bonds	1,000 00	
Dec.	" 5 months, 12 days interest on $100,000 Mass. 5 per cent. Bonds	2,250 00	
1883			
Jan.	" Pueblo and Arkansas Valley R. R., 45 coupons, $35 each	1,575,00	
Feb.	" Chicago, Burlington and Quincy R. R. 4 per cent. Bonds, 62 coupons, $20 each	1.240 00	
"	" Kansas and Missouri R. R., 54 coupons, $25 each	1,350 00	
			$11,165 00
1882			
July.	Paid F. W. Putnam, Curator, on account of Building Fund	$1,500 00	
"	" " " " " " Museum Fund	2,250 00	
Nov.	" coupons on 62,000 C. B. & Q. bonds, 3 mos. 24 days, 4 p. c.	785 33	
Dec.	" " " " 54.000 K. & M. " 4 " 13 " 5 "	997 50	
"	" " " " 31,000 P. & A. V. " 5 " 13 " 7 "	982 53	
"	" " " " 14,000 P. & A. V. " 5 " 17 " 7 "	454 60	
1883			
Jan.	" F. W. Putnam, Curator, on account of Building Fund	1,555 00	
Feb.	" " " " " " Museum Fund	2,640 04	
			$11,165 00

JOHN C. PHILLIPS, *Treasurer.*

FEB. 17, 1883.

I have examined these accounts of the Treasurer and the securities on hand, and find them correct.

THEODORE LYMAN, *Auditor.*

Feb. 17, 1883.

CASH ACCOUNT OF

F. W. PUTNAM, *Curator, in Account with Peabody*

Dr.

1882–83.

To Building Fund.

Balance on hand from last account	$1310 62	
Received from John C. Phillips, Treasurer	3055 00	
		$4365 62

To Museum Fund.

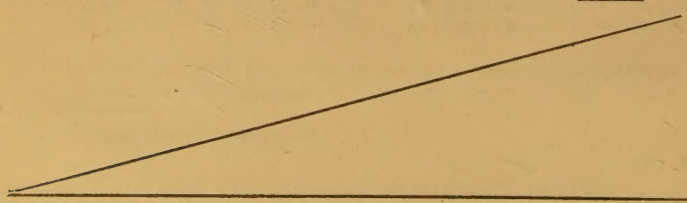
Balance on hand from last account	233 02	
From Building Fund, 3rd payment account of cases 1868–74	1000 00	
Balance cash returned from an unexpended appropriation of 1879	16 20	
Received from John C. Phillips, Treasurer	4890 04	
Publications sold	12 11	
Gift from a friend	200 00	
Gift from a friend	25 00	
		6376 37

To Subscription for Archæological Research in America.

Received from John C. Phillips, Treasurer, the following subscriptions:		
Hon. Stephen Salisbury of Worcester	500 00	
Hon. Theodore Lyman of Brookline	500 00	
John C. Phillips, Esq., of Boston	500 00	
Mrs. Augustus Hemenway of Boston	500 00	
Mrs. Gardner Brewer of Boston	300 00	
Dr. C. A. Ware of Boston	200 00	
William B. Weedon of Providence	50 00	
		2550 00

To Subscriptions for Research among Indian Tribes.

Col. A. C. Woodworth of Chicopee (in aid of Miss Fletcher's researches)	500 00	
Joshua W. Davis, Esq., of Boston (in aid of Miss Fletcher's researches)	50 00	
		550 00



$13,841 99

THE CURATOR.

Museum of American Archæology and Ethnology.

Cr.

1882-83.

By Building Fund.

Paid Museum Fund, 3rd payment account of cases 1868-74	$1000 00	
Cases, stock and labor	770 33	
Furniture, stock and materials used	95 22	
E. E. Chick, part salary	500 00	
		$2365 55
Balance, cash on hand to new account		2000 07
		4365 62

By Museum Fund.

Collections purchased and special explorations	71 00	
Six Museum Catalogue Books	33 00	
Stereotyping and printing 1000 copies 15th Report	321 34	
Drawing and engraving	113 54	
Various publications	80 12	
Library; books, subscriptions, cards and labels	48 33	
Photographing and materials	79 49	
Diagrams, cloth, etc.	212 36	
Goniometer 3.00; Atomizer .75	3 75	
Circulars, cards, stationery, twine, etc.	89 32	
Incidentals	30 44	
Postage, telegraph, telephone, express	232 93	
Paper trays	21 63	
Ethnological research among the Indians	25 00	
Water tax	25 00	
Fuel and gas	212 71	
Salaries	4300 00	
		5899 96
Balance, cash on hand to new account		476 41
		6376 37

By Subscription for Archæological Research in America.

Explorations in Central America	106 50	
Explorations in New Jersey	102 20	
Explorations in Ohio and Tennessee	1569 43	
Explorations of Shellheaps in Maine	91 15	
Collection from Shellheaps in Alabama	25 00	
Collection from New England	15 00	
Collection from New Mexico	45 00	
Collection from Nebraska	56 50	
Collection from Ohio and Indiana	105 25	
Collection from Salt Cave, Kentucky	5 00	
		2121 08
Balance, cash on hand to new account		428 92
		2550 00

By Subscription for Research among Indian Tribes.

Amount to new account	550 00
	$13,841 99

I have examined this account, with the vouchers, and find it correct.

THEODORE LYMAN.

Feb. 12, 1883.

SUBSCRIPTIONS

For Archæological and Ethnological Research in America, and for the General Purposes of the Museum.

Hon. Stephen Salisbury, Worcester, Mass.	$500 00	
Hon. Theodore Lyman, Brookline, Mass.	500 00	
John C. Phillips, Esq., Boston, Mass.	500 00	
Mrs. Augustus Hemenway, Boston, Mass.	500 00	
Samuel D. Warren, Esq., " "	500 00	
Mrs. Gardner Brewer, " "	300 00	
Dr. C. A. Ware, " "	200 00	
Dr. R. M. Hodges, " "	100 00	
Mrs. G. H. Shaw, " "	100 00	
Hon. Robert C. Winthrop, " "	100 00	
Wm. B. Weeden, Esq., Providence, R. I.	50 00	
Amount of above previously announced,		$3350 00
Col. A. C. Woodworth, Chicopee, Mass.	$500 00	
Mrs. Susan C. Warren, Boston, "	250 00	
Dr. Robert H. Lamborn, New York, N. Y.	200 00	
George Peabody Russell, Esq., Isle of Wight,	100 00	
Mrs. Clara B. Kimball, Boston, Mass.	100 00	
Wm. B. Weeden, Esq., Providence, R. I., 2d subscription,	50 00	
Joshua W. Davis, Esq., Boston, Mass.,	50 00	
A Friend, Buffalo, N. Y.	33 00	
Dr. Wm. F. Whitney, Boston, Mass.	25 00	
Mrs. Geo. O. Shattuck, " "	5 00	
		$1313 00
Total of subscriptions for 1882–3		$4663 00

Additional subscriptions are earnestly solicited.

REPORT OF THE CURATOR.

To the Trustees of the Peabody Museum of Archæology and Ethnology.

GENTLEMEN:—By the liberality of the several ladies and gentlemen who generously subscribed the sum of $3,350 to be used by the Museum for archæological research in America, we have been enabled to resume the important work of exploration during the past year; and it is with great pleasure that I report to you the valuable results secured through this timely aid.

Of the amount subscribed up to the date of the adjourned annual meeting in March last, $2,550 was appropriated for use during the year. Arrangements were at once made to continue the explorations in Central America, and I have received word from Dr. FLINT that the work is in progress with prospect of good results. We have been able to continue the work in New Jersey through Dr. ABBOTT's assistance, and several small collections which were much needed to fill gaps in the Museum were secured from other places. I was also able to take the field in person, and under my immediate direction explorations have been made of shellheaps on the coast of Maine, of a large mound and an ancient cemetery in Brentwood, Tenn., and, in connection with Dr. C. L. METZ, of mounds and earthworks in the Little Miami Valley, Ohio.

As the results of my own work were so signally due to the contributors to the exploration fund, it was with pleasure that in the months of November and December I gave a course of five lectures complimentary to the subscribers to that fund. Tickets for the course were sent to the subscribers and others, and were also given out on application at the Museum. All the tickets were taken, and I had the pleasure of making known, to a highly appreciative audience, the results of the explorations, illustrated by diagrams and by the specimens collected. As these lectures were reported for papers in Cambridge, Boston and New York,

this work of the Museum has become widely known, and I trust it will aid in obtaining the means for continuing explorations during the present year.

It would be a great loss if we should again be forced by lack of means to discontinue field work; and since the work of the past year has demonstrated that interesting material may be secured and important results attained by systematic research, we are certainly justified in asking for further aid, which it can hardly be doubted will be given when the importance of the work and the necessity for immediate action are more widely known to the patrons of American research. With a view to extending the interest in American explorations, I recently had the pleasure of giving a lecture in the parlors of Mrs. S. D. Warren, in Boston, before the Woman's Educational Association.

A brief account of the explorations made under my immediate charge will not be out of place here, although I have not yet had time to study the large amount of material obtained.

The explorations of shellheaps on the coast of Maine, in the month of September, were mainly confined to a large and undisturbed deposit at Keene's Point on the Muscongus Sound, although the great oysterheaps on the Damariscotta River and several smaller deposits nearer the mouth of the river were visited.

At Keene's Point, owned by Mr. William Keene, to whom we are indebted for permission to make the excavation in his pasture, the sea has encroached upon the shellheap and has washed away a large part of it, probably the oldest portion, leaving on the edge of the bluff a thickness of nearly five feet. The deposit of shells extends inland about eighty feet and gradually thins out until there is a depth of only a few inches. The stretch along the shore is over two hundred feet. This deposit consists principally of the shells of the clam, which is still abundant in the sound. Shells of the quahaug, Buccinum, Natica, oyster and Pecten, were also found. The shells of the quahaug and Buccinum were more numerous than those of the oyster, but were comparatively few when compared to the clam-shells. Probably not over half a dozen shells of the Pecten were thrown out of our excavations. Many broken animal bones were found; the most common were those of the deer, moose and bear, although many bones of the fox, otter, skunk, beaver, and several other species of mammals were obtained. Several species of large birds were represented, princi-

pally herons and ducks. Bones of the codfish, flounder and devil-fish were numerous. Several scales of the sturgeon, and a few turtle bones were also met with.

The deposit was particularly rich in fragments of cord-marked and incised pottery, which were found at various depths below the surface and even at the bottom of the deposit. The number of stone implements found in this shellheap was unusually large, as heretofore similar deposits on the Atlantic coast have yielded but few. Here, however, were many rude hammerstones, several large rudely-chipped implements and a number of chipped stone-points, of which the larger and ruder probably served as knives, and the smaller and more regularly chipped as arrowpoints. One polished celt was found. As usual, in all the shellheaps of New England, bone points were common here, and several of the notched or simple barbed-points were found. A single harpoon-point of bone, with two barbs and a perforation for attaching the point to a shaft, is the first of its kind from the Atlantic deposits. This point was dug out by Mr. Albert I. Phelps and given to the Museum, in addition to a valuable collection which he made from this and neighboring shellheaps. In the shellheap on Hodgdon's Island, Mr. A. T. Gamage found a perforated point with a single barb, which, with other things, he gave to the Museum. In this connection I must also mention our indebtedness to Mr. Stephen L. Chapman for several specimens which he collected.

A spearpoint of bone was found by Mr. Phelps about one foot below the surface, and above it, just under the sod, he found an iron point of nearly the same size and shape, which was probably made out of a piece of hoop iron in imitation of the earlier bone implements. An iron spear and an iron axe of very old form were also found in the shells near the surface of the deposit, which with a small clay pipe of a kind made in England about the middle of the seventeenth century, found also by Mr. Phelps ten inches deep in the shells, show that this particular deposit was added to by the Indians after contact with the whites, though there can be no doubt that it was commenced long before that time.

While I was in Damariscotta it was my good fortune to meet several gentlemen interested in local archæology, from whom I obtained much information, besides numerous specimens which are acknowledged in the accompanying list of additions to the Museum. Among these were portions of human skeletons which were found

in a shellheap on Fort Island, by Messrs. GAMAGE and PHELPS. One of the crania of this lot had been presented to the Museum by Mr. GAMAGE previous to my visit, and Dr. R. C. CHAPMAN kindly gave me the only other perfect skull which had been obtained. The bones of these skeletons were not in natural order, and Messrs. GAMAGE and PHELPS think the bodies could not have been regularly buried. Dr. CHAPMAN also was the means of our receiving from Mr. CHARLES METCALF a nearly perfect cranium and other parts of a human skeleton found several years ago in the great oysterheap at Newcastle. To Mr. F. S. KNOWLTON and his son Mr. J. E. KNOWLTON, the Museum is indebted for numerous specimens found in the shellheaps and on the surface in the vicinity of Damariscotta. Mr. M. H. GAMAGE and Mr. HENRY T. HUSSEY,[1] also added many interesting specimens from the shellheaps in this region.

Soon after my return from this expedition I received an invitation from the Maine Historical Society to give an address before the members of the Maine Historical and Natural History Societies, on the shellheaps of Maine, which I had recently explored, and I had the pleasure of addressing these Societies in Portland on the twenty-third of December.

My explorations in Tennessee were made in the vicinity of Brentwood, Williamson County, during the months of May and June, and I must here express my indebtedness to Dr. W. H. JARMAN and Mrs. JARMAN for their kind assistance.

At this time an earth-mound on the farm of Mr. JOHN OWEN HUNT was examined. This mound has been in the possession of the Hunt family since 1782, and the present proprietor remembers when it had a flat top and steep regular sides, but constant ploughing has reduced its height about four feet while it increased its diameter. Its present height is ten feet and its diameter about ninety-five feet. In 1875 a large red elm, three and a half feet in diameter, was cut from the top of the mound. Leading from the mound to a large boiling spring, about an eighth of a mile away, there is a deeply worn trail which can still be distinctly traced through the woods where it is, in places, three feet deep and four feet wide. There are six good springs within a quarter of a mile of the mound, and the region about was in past times the site of extensive settlements.

[1] Since deceased.

Exploration showed this mound to be one of those large tumuli, the purpose of which is unknown. At its centre, on the surface of the ground, a small bed of ashes was discovered, in which were a few potsherds, a fragment of an animal bone and a piece of burnt stone. Six feet above this were several pieces of burnt limestone, and at various depths in the course of the excavation were found pieces of charcoal, a few animal bones, small masses of ashes, and occasionally a flint chip. About three feet from the top of the mound was a layer of very hard clay, about eight inches thick, which apparently had covered the mound when it was about six feet in height.

This does not seem to have been a burial mound, nor did its ash bed indicate cremation. In the immediate vicinity of the mound were many stone graves, and this circumstance recalls my exploration, several years ago, of another large mound twenty-three feet high, about twenty miles from Brentwood, about which were also a large number of stone graves, and in which there was not a trace of a burial nor even of a fire. Are tumuli of this character simply monuments marking the sites of ancient cemeteries?

About a mile from Hunt's mound, on the rising ground upon which stands the house of Dr. W. H. Jarman, are the remains of what was formerly an extensive cemetery, covering several acres, but as most of the ground has long been under cultivation hundreds of graves have been destroyed by former owners of the land without any heed being given to their contents. In the immediate vicinity of Dr. Jarman's house, I opened eighty graves which had not been disturbed. The top stones of many of these were from two to three feet below the surface, which is an unusual depth.

These graves were of the same character as the several thousand which have been explored by Mr. Curtis and myself in the Cumberland valley. They were made of large slabs of stone placed edgewise, to form the sides and ends, on which other flat stones rested, forming the tops of the graves. The bottoms of these cists were sometimes lined with small stones but oftener with large potsherds. In some instances the lining was probably of bark. In several of these graves, two or three, and in one instance five, bodies were buried. In two graves I found, besides the skeleton of the person for whom the grave was made, one or two bones belonging to a second individual in such positions as showed that

they had been carefully placed in the grave. In the grave of an adult whose skeleton was removed nearly entire, there was the skull, but no other bones, of a very old person, which was unquestionably placed in the grave at the time of the burial of the body. In one grave containing five skeletons, two of the three adult crania have persistent frontal sutures, and these are the only crania from the eighty graves presenting this peculiarity. One adult skull has an extra suture dividing the parietal of the left side into two nearly equal portions. This skull is also remarkable for its extreme occipital flattening, and for the great development of large Wormian bones. The two lateral incisors of the upper jaw are absent, and if they were ever present they must have been lost early in life, as all signs of the alveoli or of wide gaps between the teeth are obliterated. Many of the bones found in these graves bear evidence of simple inflammatory disease but none of any specific taint. Several bones showing united fractures were found.

As has been the case in all the other cemeteries of the stone-grave people of Tennessee, considerable well-made pottery of an ornamental character was found in the graves at Brentwood. This pottery resembles in type that from the Missouri graves, but is, taken as a whole, of better finish. There were no large and coarse vessels in the graves, although the large fragments of thick pottery with which the bottoms of many graves were lined show that large vessels were made. The pottery from the stone-graves consists principally of water-bottles of various shapes, small food-dishes, and bowls. Some of these are ornamented by incised lines, and others by designs in colors. Stone implements have never been found in large numbers in the stone-graves, although they have yielded some very fine and interesting chipped and polished specimens. Among the articles of this character from the Brentwood graves, are a large and finely polished celt of chert, several long chipped points with serrated edges, and a few arrowheads, one of which was found embedded in a dorsal vertebra of the skeleton in the grave. Several implements and ornaments made of bone were obtained from the graves, among them two long bone pins with large flat heads, both found close to skulls, suggesting that they were probably used for hair ornaments. Several terra-cotta and shell beads were found, also a single carved disk of shell, resembling those previously found in the stone-graves

of the Cumberland valley. A clay pipe with an ornamental bowl was taken from one of the graves. Very few pipes have been found in the stone-graves, only eight having been obtained in the several thousand graves which have been explored for the Museum. Of these eight, three were of pottery, and the rest of different kinds of stone; one of the latter, elaborately carved, representing a man holding a cooking pot which formed the bowl of the pipe.

An interesting discovery was made in the cemetery, close to the gate of Dr. Jarman's door-yard. The hill at this place had gradually been gullied, and after a late rain Dr. JARMAN had noticed a mass of charcoal to which he called my attention soon after my arrival. On removing with a trowel all the earth about the charcoal, it proved to be the remains of burnt logs. A man was then kept at work for several days following out the lines of charcoal and burnt clay and after a time he succeeded in bringing to light, from under a few inches of clay, the charred floor-beams of a wooden structure of some sort. Within the enclosure formed by the charred logs were discovered a bed of ashes, a number of fragments of pottery, one perfect dish, identical in character with those found in the stone-graves near by, also a few burnt bones, two small discoidal stones and two discoidal pieces of pottery. The logs had been supported by clay which partly covered them and thus prevented their total destruction when the building, of whose floor they formed a part, was destroyed by fire. This structure was traced for about ten feet in length and five in width, and a drawing was made before anything was disturbed. While stone-graves were found on all sides and within ten to twenty feet of the site of this structure, none were discovered under it, and there seems no reasonable doubt that these charred logs were the remains of a wooden structure of the period of the stone-graves.

In May last I renewed my explorations in the Ancient Cemetery at Madisonville, Ohio, which has become noted for its singular ash-pits, as well as for the skeletons buried in or at the bottom of the leaf mould covering the pits. In my investigations here and in other places in Ohio, I have been greatly aided by the coöperation and constant association of Dr. C. L. METZ, who has become identified with researches relating to the antiquities of the Little Miami Valley. I had in two previous years become greatly interested in this place, and wished, if possible, by renewed investigations to obtain some clew to the purpose which the ashpits served; but

after a thorough examination of a large area, dug over under my direction, in which were numerous ashpits, they remain nearly as much a mystery as ever, and none of the theories brought forward to explain them seem to be satisfactory. The labor expended in digging them in the hard clay, to the depth of from one to five and sometimes even six or seven feet, and the peculiar character of their contents, of which ashes form the greater part, render it not improbable that they were made in pursuance of some peculiar superstition or as a part of a religious rite. A thousand of these pits have been opened and a large amount of material obtained, illustrative of the implements, ornaments, pottery and other articles used by the people who made the pits. Charred corn, nuts, bones and other remains of animals used for food have also been found in the pits. The contents of several pits, excepting the ashes, of which samples were saved, have been brought to the Museum and arranged so as to show the singular mixture of objects found in them. Besides these special lots, a very extensive collection of specimens was obtained from the pits in general.

During the exploration a number of human skeletons were dug out of the leaf mould or from just beneath it. With the skeletons were found a number of pottery vessels, most of which have conical bottoms, and four handles; pipes cut from stone, and ornaments of shell and copper.

For the first time in all my explorations finger rings were found. These rings, made of bands of copper, were still on the finger bones. They are described and figured in the last Report as objects unique in American archæology. A number of crania in good preservation, with other human bones, some of them of pathological interest, were found in the leaf mould. Of a large number of humeri about half were found to have the olecranon cavity perforated; in some cases one humerus was perforated and the opposite one was entire. The tibiæ show various degrees of flattening. The crania are nearly all brachycephalic, and although those in our collection have not yet been measured, they appear to be smaller and less flattened posteriorly than those from the stone-graves of Tennessee.

For the first time digging implements made of antler, and the singular bone scrapers, were found in the leaf mould although not associated with the skeletons. As these antler and bone implements are common in the ashpits, this adds to the diffi-

culty in solving the problem of the comparative age of the pits and of the objects found above them. It has been suggested that these characteristic objects were thrown out of the pits several years ago by persons who dug holes in the field, in a search for buried gold, and this may be, though none of the pits in the vicinity showed signs of disturbance.

Near the cemetery, a little up the hill, are several earth-circles from forty-three to fifty-eight feet in diameter. Trenches were run through four of them, down to the hard clay below the leaf mould, revealing in the centre of two, on the clay, beds of ashes in which were potsherds, flint flakes and burnt bones, with a perforated clam shell like those which have been taken by hundreds from the ashpits. One of the beds of ashes was surrounded by a number of flat stones, which had been burnt and were evidently the remains of a fire-place. In the trench, on the clay, there were found a rudely chipped stone hoe, a rude stone axe with a groove, a split pebble, a fragment of a stone gorget, worked antler tips and several rude arrowpoints.

The results of the examination of these circles proved them to be the sites of habitations, over which from one to two feet of leaf mould has formed since the central fires were deserted and the circular structures fell from decay. There can hardly be a doubt that these circles point out the site of the village of the people who, living on this beautiful spot, made the singular ashpits near by, and may have buried their dead over the pits. The few things found within the circles, and the abundance of household utensils, implements and refuse found in the ashpits, suggest the possibility that on special occasions all the articles in the house, with ornaments, implements and other personal objects, were partly destroyed by fire and the remnants being gathered up with the ashes were deposited in a pit dug for the purpose; while the great number of broken bones of various animals mixed with the ashes and other things in the pits, indicates that at such times feasts were held. Such a custom would account for the character of the contents of the pits, and the great number of the pits would indicate a long continued occupation of the village.

During my stay in Ohio, I made several excursions to the various points of interest in Anderson Township, in company with Messrs. Metz, Low, and Conkling. One of the most interesting of these excursions was to the place known as Sand Ridge, and referred to

by Dr. Metz under numbers 4 and 5 of group E in his map of the Prehistoric Monuments of Anderson Township. Of this place Dr. Metz writes as follows:

"Westward from the Union Bridge, over the Little Miami river, is a ridge of land, known as the sand ridge, that forms a series of elevated plateaus, extending westwardly for about a mile, and reaches an elevation of over six hundred feet above the first plain. Its greatest width is about three hundred yards. After a steep ascent of about one hundred and twenty-five feet, the second level or bench is reached, having an area of probably four acres. This level is undoubtedly the site of an ancient cemetery (No. 4, Group E). On the surface, numerous potsherds, together with human bones, are found. Many fine relics have been obtained by the writer and others from this locality. Crossing the level, another steep ascent of about one hundred feet brings us to the third plain. In the centre of the upper edge of this plain or bench, overlooking the cemetery, was, until recently, a circle of upright stones, ten feet in diameter (No. 5, Group E). These stones were from ten to twelve inches wide, and from four to five feet in length, arranged close together and forming a circle. From this point the ascent is gradual until the highest point is reached, about six hundred feet above the Little Miami river. Over this entire slope, broken bowlders, flint chips, fragments of pottery, arrow flints, stone implements, etc., are found, giving evidence of a long and continued occupation."

Many relics were gathered at this place; among them a large sharpening stone with deeply worn grooves eleven inches long and four inches wide, several rudely chipped hoe-like stones, hammerstones, chipped stone points, a few polished celts, two bone implements, and a few ornaments.

A visit was also made to "Fort Ancient," in company with Messrs. Metz, Low and Couden; and this, the largest and most interesting of the remaining earthworks of Ohio, was examined as thoroughly as possible under the adverse condition of a heavy rain during the day. We walked over the whole of the nearly five miles of high embankment and noticed with regret the many signs pointing to its early destruction. Although it has withstood the elements for untold centuries, it is falling before the American farmer with his all-destroying plough, his herds of cattle and droves of swine. The immense embankments, from twelve to twenty feet in height and sixty or more in width, are now gradually being undermined.

Along their summits a fence has been built, by the side of which the cattle have worn a deep path, and from this, after every rain, flow hundreds of little rills which are slowly but surely washing the earth from the top to the bottom of the steep banks. Here and there, also, a ditch has been made to drain the fields enclosed, which every spring cuts deeper and deeper into the ancient walls. After fully appreciating the immensity of this structure and realizing the enormous amount of human labor which was bestowed centuries ago upon these ancient walls and the mounds which they enclose, it was with a sigh that I turned away feeling myself powerless to save so important a monument of the past for the wonder and admiration of future generations. It would require but a few thousand dollars to secure this grand old work, and with little expense the recently destroyed portions could be restored and nature be induced again to furnish her protecting coat of verdure, and with slight care from coming generations this achievement of an unknown people would be preserved for all time to come. If the Museum should be the medium for accomplishing this desirable result, and Fort Ancient should be preserved and brought under its charge, it would undoubtedly be carrying out in the broadest sense one of the objects for which it was founded—the preservation of American antiquities.

On a hill belonging to Mr. William Edwards, about one hundred and fifty feet above the level of "Big Dry Run," in the eastern part of Anderson Township, to the south of the Batavia Pike, is an interesting stone-mound which I explored in company with Dr. Metz. This mound had been opened in 1876 by a man who was present during our exploration, and he stated that he dug the hole, which extended under the roots of the large beech tree which was growing upon one side of the mound, in the hope of finding gold, but that all he discovered were the bones of two human skeletons under a layer of ashes. In our examination we found the layer of ashes and in it a few potsherds and fragments of human bones belonging to two skeletons. Although it was a disappointment to find the mound had been disturbed we had the opportunity of studying an interesting structure. A trench was run through the mound and the central portion cleared to the original surface. We found that the bodies had been placed on the surface of the hill and over them a quantity of ashes, in which were potsherds, probably the remains of one or more vessels placed near the bodies.

A vertical wall of stones, two feet eight inches high, had been built, forming a circle thirty-six feet in diameter with the bodies near the centre. The space inside this wall had then been filled up with stones which were raised in a conical form to a height of four feet three inches in the centre. Over this pile of stones there was a covering of about two feet of clay. The stones composing the mound had all been brought from the bed of a creek nearly a quarter of a mile away, and as many must have required at least two men to handle them, few being under fifty pounds in weight, the labor in making this tumulus must have been very great. Its commanding position, near the edge of a projecting point on the hill, shows that it was intended to be an imposing monument in honor of the dead, whose memory it perpetuated until their descendants had all passed away.

On the estate of Mr. MICHAEL TURNER, in the northeastern corner of Anderson Township, near the Little Miami river, is a group of earthworks which has proved to be, in several respects, the most interesting and important of the many which have been investigated in Ohio, and I am happy to be able to state that Mr. TURNER gave to the Museum the exclusive right of exploration, which has been most thoroughly conducted. In May last I visited the group with Dr. METZ, and soon after we took several men to the place and passed the day in exploring one of the mounds and trenching a large earth-circle in which, a number of years ago, Mr. TURNER, when ploughing, found a stone cist containing a human skeleton. As the time at my disposal was insufficient for a proper exploration of the group, I arranged with Dr. METZ to continue the work for the Museum. This he has done in a most satisfactory manner and we are under great obligations to him for his gratuitous labors and the care with which he has conducted the work for several months. A civil engineer, Mr. J. A. HASBROOK, was employed to make for the Museum a careful survey of the whole group, which embraces thirteen mounds and two earth-circles, all of which are enclosed by two circular embankments, one of which is on a hill and is connected with the other by a graded way. Several of the mounds contained "altars," or basins of burnt clay, on two of which there were literally thousands of objects of interest. Two of these altars, each about four feet square, were cut out and brought to the Museum. Among the objects from the altars are numerous ornaments and carvings unlike anything we have had before.

One altar contained about two bushels of ornaments made of stone, copper, mica, shells, the canine teeth of bears and other animals, and thousands of pearls. Nearly all of these objects are perforated in various ways for suspension. Several of the copper ornaments are covered with native silver, which had been hammered out into thin sheets and folded over the copper. Among these are a bracelet and a bead, and several of the spool-shaped objects, which, from discoveries made in other mounds of this group, I now regard as ear-ornaments. One small copper pendant seems to have been covered with a thin sheet of gold, a portion of which still adheres to the copper, while other bits of it were found in the mass of materials. This is the first time that native gold has been found in the mounds, although hundreds have been explored; and the small amount found here shows that its use was exceptional.[2] The ornaments cut out of copper and mica are very interesting and embrace many forms; among them is a grotesque human profile cut out of a sheet of mica. Several ornaments of this material resemble the heads of animals whose features are emphasized by a red color, while others are in the form of circles and bands. Many of the copper ornaments are large and of peculiar shape; others are scrolls, scalloped circles, oval pendants and other forms. There are about thirty of the singular spool-shaped objects, or earrings, made of copper, like the two described in the last Report (figs. 18, 19). Three large sheets of mica were on this altar, and several finely chipped points of obsidian, chalcedony and chert, were in the mass of materials. Several pendants, cut from a micaceous schist[3], are of a unique style of work. There are also portions of a circular piece of bone, over the surface of which are incised figures, and flat pieces of shell similarly carved. Several masses of native copper were on the altar.

But by far the most important things found on this altar were the several masses of *meteoric iron* and the ornaments made from this metal. One of these is half of a spool-shaped object, or ear-ornament, like those made of copper, with which it was associated. Another ear-ornament of copper is covered with a thin plating of

[2] Dr. HILDRETH, Arch. Amer., vol. I, p. 176, 1820. states that he was *told* that a gold ornament was found in a small mound near Chillicothe, Ohio. This proved to be copper. See SQUIER and DAVIS, Ancient Monuments, p. 279, 1848.

[3] I am indebted to Dr. M. E. WADSWORTH, of the Geological Department of the University, for this determination and also for other similar favors.

the iron, in the same manner as others were covered with silver. There is also a folded and corrugated band of iron of the same shape and of about the same size as the band of copper found in a mound in Tennessee and figured in the last Report (fig. 16). Three of the masses of iron have been more or less hammered into bars, as if for the purpose of making some ornament or implement, and another is apparently in the natural shape in which it was found. As all these iron masses were exposed to great heat on the altar, they have become more or less oxidized, and two of them were so much changed in external character that several good mineralogists, as well as myself, mistook them for masses of limonite, or bog iron, which had probably formed since the mound was erected. The discovery of iron in the mound was of course a matter of great interest, from whichever side it was viewed, and it was therefore of the first importance that its character should be accurately determined. For this purpose I have been fortunate in securing the coöperation of Dr. L. P. KINNICUTT, Assistant in Chemistry in Harvard College, who has become much interested in the work and has made careful analyses of all the masses and objects of iron. Dr. KINNICUTT has found that each and all contain *nickel*, and that *all the iron is unquestionably meteoric*.[4] As this is the first time that objects made of meteoric iron have been determined from the mounds, it is of great interest, and it will now be necessary to examine anew the statements made by Hildreth and Atwater in relation to the traces of iron which they found in mounds in Ohio over sixty years ago.[5]

[4] The quantitative analyses have not yet been made, but as noticed farther on, Dr. KINNICUTT is to furnish a detailed account for publication in this report.

[5] Since this was written I have obtained for study, from the American Antiquarian Society, the several specimens described by Dr. HILDRETH (Archæologia Americana, vol. I, p. 163, 1820), from the mound at Marietta. I shall furnish a full description of these articles to the Antiquarian Society, and it is only necessary to state here that Dr. Hildreth was mistaken in their character. The "silver plated bosses," which he thought were ornaments from a sword belt, are identical with the silver plated ear ornaments I have mentioned above. The corrugated silver band which he describes as the "upper part of a sword scabbard," is of the same shape and character as the corrugated band of meteoric iron from the altar referred to above and like the copper band described in the last Report (fig. 16). This is also of the same character as the copper ornament taken from a mound in Cincinnati in 1794, and figured by BARTON; Trans. Am. Phil. Soc., vol. IV, p. 180, fig. 10, 1799. The "Copper tube" which Dr. Hildreth regarded as the "end of the scabbard," is simply a much oxidized copper bead, and the only signs of anything that could be taken for "the iron rust which filled the tube" were oxidized grains of copper.

It is worth recapitulating here that *native* gold, silver, copper and iron were all found on the altar of the large mound in this group, and that all were manufactured into ornaments simply by hammering.[6] A mass of lead ore, galena, was found in another mound of this group.

On another altar, in another mound of the group, were several terra-cotta figurines of a character heretofore unknown from the mounds. Unfortunately, these objects, as well as others found on the altars, had been more or less burnt, and many of them appear to have been purposely broken before they were placed on the altars. Many pieces of these images have been united and it is my hope that we shall succeed in nearly restoring some of them. Enough has already been made out to show their importance in the study of early American art. The peculiar method of wearing the hair, the singular head-dresses and large button-like ear-ornaments shown by these human figures are of particular interest. The ear-ornaments leave no doubt of the character of the spool-shaped objects referred to on a previous page. On the same altar with the figurines were two remarkable dishes carved from stone, in the form of animals, which we have nearly restored from a large number of small fragments. With these was a serpent cut out of mica. On the same altar were several hundred small quartz pebbles from the river, and nearly three hundred astragali of deer and elk. As but two of these bones could be obtained from a single animal, and as there were but one or two fragments of other bones, there must have been some special and important reason for collecting so large a number of these particular bones. A finely made bracelet of copper and several other

From these misconceptions, for over sixty years archæologists have been misled in regard to the antiquity of the Marietta mound.

The references to iron found in a mound at Circleville, by Mr. ATWATER, are hardly worth considering (Arch. Amer. I, p. 178). He simply found a worked piece of antler, with a hole at one end, around which was a band of silver. This he *called* a knife or sword handle, and he says distinctly that "*no iron was found*, but an oxyde remained of similar shape and size." In this connection masses of burnt clay are spoken of as "bricks very well burnt," and a large sheet of mica is called a "mirrour, which answered the purpose very well for which it was intended." From such expressions the lively imagination of the author can be appreciated.

The other reference, on the same page, is as follows: "A plate of iron, which had become an oxyde; but before it was disturbed by the spade, resembled a plate of cast iron." Certainly something more definite than this statement is required before it can be said that *cast* iron has been found in the ancient mounds.

[6] I may add that I have found no difficulty in cold hammering a piece of the meteoric iron into a thin sheet by using two stones; also that a quantitative analysis by Dr. KINNICUT shows the gold and silver to be native, as stated above.

ornaments of copper, a few pearls and shells and other ornaments were on this altar. Two large masses of native copper and one mass of unworked meteoric iron were also on this altar. Many specimens of fossil shells were found on the two altars.

This brief mention of the large amount of material obtained from the several "altar mounds" is given simply to convey an idea of the importance of the collection. It will take a long time to assort and arrange it for study; but I hope to be able, in the course of the year, to furnish a full account of this group of mounds with an illustrated description of all the objects found in them.

The mounds themselves are no less interesting than the objects which they contained, and as Dr. METZ took careful notes and made sketches during the exploration, we shall, I trust, in our joint memoir, be able to furnish a satisfactory account of the whole group.

The larger of the two mounds within the earthwork on the hill, a plan of which was published by Col. Whittlesey in 1850, proved a most interesting structure, unlike anything heretofore discovered. It contained a small central tumulus, surrounded by a carefully built stone wall and covered in by a platform of stones, over which was a mass of clay. On this wall were two depressions in each of which a body had been laid, and outside the wall in the surrounding clay were found several skeletons, one of them lying upon a platform of stones. With these skeletons were found a copper celt, ornaments made of copper and shell, and two large sea shells. With each of three of the skeletons was a pair of the spool-shaped ear-ornaments of copper, and in every instance these ornaments were found one on either side near the skull. The thirteen mounds within the large enclosure differ so much in their structure that detailed descriptions of each would have to be given, in order to convey a correct idea of this singular and interesting group. I will mention, however, that under one of the altar mounds a large ashpit, six feet deep, and similar to those in the ancient cemetery at Madisonville, was discovered, and under another altar mound were several pits of smaller size but of similar character. Beneath a small mound containing skeletons, was an excavation six feet wide and twenty-seven inches deep, filled with ashes mixed with animal bones, potsherds, and other objects. This is the first time that pits of this character have been discovered in connection with the mounds, and their presence gives an

additional interest to this group. In another mound, containing a human skeleton, a small copper celt found on the bones of a hand is of special interest, as it has a cast of the papillæ of the fingers distinctly preserved in the carbonate of copper. Under the centre of one mound there was a bed of ashes in which were three pottery vessels.

A singular stone-covered mound, situated on the southern bank of the river near the group, was also explored by Dr. METZ. This mound was stratified, and its central portion was made up entirely of ashes and animal remains similar to the contents of an ashpit. A portion of this mound had been washed away by the river, and it is said that in 1880 two skeletons were exposed and were taken out by a gentlemen from Mt. Carmel, Ohio. The surface of the mound was entirely covered with small stones of nearly the same size and color.

Three other mounds in Hamilton County were also explored by Dr. METZ, as follows:

The Langdon Mound, near Red Bank, was eight feet high and about fifty feet in diameter, and composed of a sandy loam, covering an oval bed of ashes and charcoal, twelve feet long, eight feet wide and ten inches thick in the centre, on which were three stone celts, partly covered by the sandy loam. Under the central portion of the ash-bed a circular cavity, or basin, one foot deep and five feet in diameter, was discovered. This contained ashes and charcoal, and a number of small pieces of burnt bones, probably human. The basin had been dug in the earth beneath the mound, and immediately about it the earth was burnt to a depth of three or four inches, showing that there had been a fire in the basin, and there can be little doubt that this was an instance of cremation of a human body.

Another mound was opened about sixty feet south of the Langdon Mound. This was about thirty feet in diameter and three and one-half feet in height. In the centre was a bed of ashes and charcoal about three inches thick, containing a few animal remains and shells of the fresh-water clam.

On the farm of Mr. Gould, about two miles from Reading, a conical mound, on an elevated site, was explored. This mound was six feet high and sixty feet in diameter at the base. An earth embankment, three feet high and twenty-two feet wide at its base, encloses the mound, forming a circle about it one hundred and fifty

feet in diameter, measured from the outside of the embankment. This circle has an opening thirty-seven feet wide looking to the southeast. The mound was found to be stratified. The outer layer was composed of fifteen inches of very hard yellow clay. Under this was a layer, ten inches in thickness, of burnt clay, mixed with ashes and charcoal. The clay in this layer was burnt to a brick-red color and was very hard. Below this was a stratum of compact grayish ashes containing pieces of burnt stone. This layer was fifteen inches in thickness. Beneath this was ten inches of burnt clay in which were a small chipped flint and a fragment of burnt bone, which was the only piece of bone found in the mound. Beneath this last stratum, and occupying the central portion of the mound, was a conical heap of hard gray earth in which were small flakes of charcoal. This gray earth was so hard that it could only be removed by the use of the pick. It was eight by ten feet in diameter and twenty-two inches in thickness in the centre. Under this hard mass, and below the natural surface of the clay, were four circular pockets or excavations, each of which was ten inches deep and fourteen inches wide. These pockets were about four inches apart. Three of them were filled with a dark, pasty substance which became hard on drying, and the other contained fragments of stone, burnt clay and earth. The structure of this mound is unusual, and the purpose for which it was erected over the four small holes is at present unknown, adding one more to the problems relating to the mounds, which we can only hope to solve by thoroughly exploring such as have not yet been disturbed. Unfortunately, the number of these is rapidly decreasing and but little time is left for the work. In this connection I am glad to be able to state that Dr. Metz is continuing his labors for the Museum, and is now engaged in exploring another group of mounds in the Little Miami valley.

Besides the special explorations to which reference has been made, Dr. C. C. Abbott has sent to the Museum a considerable number of specimens obtained about Trenton, N. J. Among these were several implements taken from the gravel, and many interesting arrowpoints and other chipped implements found in the ploughed fields and procured of the farmers in that neighborhood. As Dr. Abbott is desirous of supplementing, by choice or unique forms, the collection of over twenty thousand stone implements he has sent to the Museum in past years, we have received from him many fine

specimens during the year. Besides stone implements he has sent us two spearheads of native copper, which are the first known from the vicinity of Trenton. As these were received while the last annual report was passing through the press, they were described and figured in my paper on copper ornaments and implements.

While prosecuting his researches in the gravel beds in which he has found so many paleolithic implements in past years, Dr. ABBOTT was so fortunate as to discover a human molar *in situ* in the gravel, and as there can be no doubt that this rolled and worn tooth is of the same age as the stone implements found in the gravel, we have in this valuable relic the undoubted remains of a paleolithic man. The discovery of this tooth is also of importance in removing the little remaining doubt as to the actual occurrence in the gravel of the large portion of the human skull sent by Dr. ABBOTT to the Museum, a few years ago, with the statement of the person from whom he obtained it that it was found in the gravel. The human tooth has been added to the collection in the Museum, and in October last, Dr. ABBOTT read before the Boston Society of Natural History a full account of its discovery, which will be printed in the Proceedings of the Society.

From Miss ALICE C. FLETCHER the Museum has received a very important addition to the collections relating to present Indian tribes. Miss FLETCHER was for some time among the Omaha and Sioux Indians, going to them for the purpose of studying their home life and religion. Her great interest in the Indians and her efforts to advance their cause have made her a welcome friend to several of the tribes, and she has obtained an insight into their character and home life, such as could only be secured by throwing heart and mind into the work. The estimate which she has formed of the character of the Indians with whom she has been is considerably at variance with that of persons who have looked at Indian life wholly from the outside, and if, as she desires, she should be able to continue her work among the tribes, undoubtedly we shall receive a more thorough knowledge of their character, home life and institutions than has yet been given to the world. Her intimate connection with the Omahas, particularly, has enabled her to procure for the Museum many things illustrating a phase of life rapidly passing away as the Indians endeavor to meet new conditions surrounding them. It is, therefore, greatly to be hoped that on her return to the Indians,

which will probably soon take place, the Museum may have the means to offer her the assistance needed to secure a full representation of all that is still to be had illustrative of tribal life and customs. In this connection I have great pleasure in informing you that already the Museum has received $500 from one friend and $50 from another, for the furtherance of Miss Fletcher's work among the Indians.

During Miss Fletcher's visit to the Ogallala Sioux she witnessed the ceremony known as the "Sun Dance," which was attended with many interesting ceremonies and lasted for several days. Thanks to her foresight and care, and the coöperation of Dr. V. T. McGillicuddy, at the Agency, we have received a nearly full representation of the many things used in the various ceremonials of the dance. These include the painted buffalo's skull, the miniature representations of a man and of a buffalo, cut from buffalo hide, which were tied to the pole; the wooden skewers which were passed through the flesh of two of the men who were fastened to the pole; the sacred board on which objects were consecrated over the fire; the sacred pipe and its stand; the wands carried by the men taking part in the ceremony, and the ornamented sticks offered as propitiatory gifts, representing horses and other valuable property. This is the first time such a collection has been made, and its importance as illustrating one of the most interesting religious observances of Indian life cannot be overestimated. In view of the rapid changes taking place, it is not improbable that this was among the last opportunities for gathering such materials. The importance of this collection is increased by the account of the ceremony which Miss Fletcher has prepared for publication.

To Dr. McGillicuddy we are greatly indebted for his assistance in completing the series of articles mentioned above, several of which could not be obtained till some time after the ceremony, and then only by persistent effort. To Mr. Samuel Garman we are under obligation for packing and attending to the transportation of a number of these articles.

We are also indebted to Mr. Garman for several interesting specimens of stone and iron implements, which he obtained while among the Indians during the past summer.

In the autumn Miss Fletcher was for several weeks at the Museum, labelling the specimens she had secured, and working

over her material and notes. At this time she gave a lecture in the Museum upon "Home Life among the Indians," which was attended by a very large and appreciative audience. She also spoke before the Boston Society of Natural History, and at other places during her stay in Boston. Her remarks on these occasions have done very much toward enlightening the public upon the character of the Omaha and other Indian tribes with which she has been in contact.

In connection with this ethnological work, an educated Omaha Indian, twenty-five years of age, Mr. FRANK LA FLESCHE, was invited to make me a visit; and while he was my guest I was enabled not only to ascertain many facts of great interest in regard to Indian character and customs, but also to obtain several traditions, myths and stories, which, as they have ethnological value, I put into writing as he told them. On leaving Cambridge, and before returning to his post in the Indian Bureau at Washington, Mr. LA FLESCHE made a visit to his parents among the Omahas, in the course of which he gathered particular information about the migrations of the Omahas and about a mound of which he had told me. These statements are of such interest, especially in relation to the recent erection of burial mounds by some of the Indian tribes, that I give his letter in full:

WASHINGTON, D. C., January 15, 1883.

DEAR PROFESSOR:

In compliance with your request, I made inquiries about the mound made by the Omahas, in which Big Elk was buried, and was told that it was about as high as a tall man's shoulders, standing up, and that he was buried with great ceremonies. His favorite horse was strangled to death by his grave, and most of his horses and household goods were given to the poor. It is said that a short time before his death, when he got back from a visit to the east,[7] he made a speech to the Omahas and said:

"My Chiefs, Braves, and young men, all, I have just returned from a long journey toward the coming of the sun, and bring you sad news; my heart is full of sorrow for you, when I think of the future and what is coming. There is a great flood coming and it will soon be here. I am now old and am near the grave and may be gone before it comes, but I am sure it will come, and soon the wild animals which God has given us for sustenance will disappear beneath this flood; even the birds will not be able to find resting places. Some of you may not comprehend my meaning, but the time is not far when you will know but too well my meaning, so those of you who understand me, prepare yourselves for it, and think what will

[7] This probably refers to his visit to Washington in 1821.

be best for this people. I am old as you see me and can no more think for you and lead you."

The place where he is buried is called or known by the Omahas as "Big Elk's Grave," but by the whites as the "Black Bird Hills," as Black Bird was buried in the same place. It is said that Black Bird was buried with but very little ceremony, as he died when the Omahas were being very much troubled with the small-pox, and was *not* buried, riding a live horse, as is stated by some. A grandson of his is still living and is about a hundred years old; he cannot remember when his grandfather died, but thinks shortly before he was born. He has Black Bird's other name, Tan-wan-ga-ha or Town-maker, and was one of the hereditary chiefs, but is not recognized as chief now, as he is very old and can no more attend the councils.

If it is more than a hundred years since the death of Black Bird, it must be nearly two hundred years now since the migrations of the Omahas, Poncas, and the Iowas north, from near St. Louis, as he died since the Omahas migrated to a place now called Bellevue, in Nebraska. When they migrated from near St. Louis they went up between the Mississippi and the Missouri and made a village north of the Pipe-stone quarries, and remained there several years. The neighboring tribes drove them southwest to the Missouri river, to a place called "the place where snow-birds were shot," where they remained several years, then moved down the river to where the Ponca reservation is, and there they lived several years; then the Omahas and Iowas left the Poncas there, and moved on, still down stream, till they got down as far as a place called Ponca, where they made a village, and remained several years. Then the Omahas, leaving the Iowas there, migrated still down stream until they got to the place now called Homer, and there made a village and remained several years, and it was there they saw the first steamboat go up the Missouri; then the Poncas and the Sioux made war on them, and drove them still southwest to the Elkhorn river, where they lived until they were again driven southeast, to the Missouri, by the Pawnees, Poncas and Sioux. Before moving southwest from the place near Homer, they punished the Poncas very severely, and would have exterminated them had they not brought out their Pipe of Peace, and thus saved themselves. Then after they had moved to Elkhorn river, they tried to make peace with the Pawnees, but not succeeding in that attempt, moved against them with the whole camp, and found the Pawnee village situated on the Republican river near a place now called Red Cloud, on the same river, strongly fortified by high earthworks. The Pawnees fought bravely for a while until the leader of the Omahas, notwithstanding the thickness of flying arrows, climbed the earthwork and was quickly followed by his men, driving the Pawnees into their mud lodges; but the Omahas dug into the sides of the lodges and set fire to the grass laid underneath the earth covering, and thus burned many to death, and the work of extermination would have kept on had not the Pawnees brought their Peace-pipe into requisition. The leader of the Omahas was "Wa-ba-ska-ha;" his aid was "Ta-hai-zin-ga."

It is said that the remains of the Pawnee earthworks can still be seen. Since the Pawnee war the Omahas moved against the Otoes, but not with success, on account of a mistake made by one of the leaders, "Wa-ha-gi," and were driven back with equal loss to both parties.

The Omahas say that three miles east of the pipe quarries there is a mound about nine or ten feet high and very large, surrounded by a large ring of earth piled up, and it is supposed that in that mound are buried the remains of warriors and their weapons of defence.

Very respectfully,

FRANK LA FLESCHE.

In March last Mr. FRANK CUSHING visited the Museum with several Zuñi chiefs and a Moqui from Zuñi, where Mr. CUSHING had lived for some time. This visit was one of great interest. A reception given at the Museum was attended by several hundred persons who were glad to see representatives of the Pueblo tribes and hear Mr. CUSHING's remarks about them. By those among us who are especially engaged in ethnological studies, this visit will be valued from the insight which it gave into the character of these people and from many little things which were learned from them in regard to objects in the Museum; while the impressive religious rite performed by the party on the shore of Deer Island, when Mr. CUSHING was formally admitted into one of the higher grades of a religious order, gave, to those who were so fortunate as to witness it, new ideas in relation to Indian character, and impressed upon all the sacrifice which Mr. CUSHING was making for ethnological science as well as for the well-being of his Indian friends. It is a satisfaction to know that he has returned to Zuñi accompanied by a devoted wife to share his labors.

As will be seen by the accompanying List of Additions to the Museum, about four thousand entries, representing many times that number of specimens, have been made in the catalogue as accessions to the Museum during the past year. A large proportion of this increase, which is beyond that of any preceding year, is due to the special explorations which were conducted by means of the money subscribed to aid archæological research in this country. Still, we have received many valuable additions from friends in various parts, and while I must refer to the list for detailed information of these gifts, I cannot omit calling particular attention to a few.

The collection presented to the Museum by Mr. Alexander Agassiz embraces a very interesting series of carvings in stone from Yucatan; portions of stone ornaments from the ruins at Uxmal and Chichen; a lintel of wood from a doorway of a ruin in Chichen; carved stones, obsidian knives and cores, pottery ornaments and other antiquities from Oaxaca and Cholula; two copper axes from Oaxaca, described in my article on copper objects in the last Report; a representative collection of recent pottery made by the natives at Merida, and several photographs of large carved stones in the National Museum of Mexico, all of which were obtained by Mr. Agassiz during his recent travels in Mexico. A number of baskets and cords made by the Caribs of Dominica, with specimens of the materials used in their manufacture, were also received from Mr. Agassiz.

To the Hon. Stephen Salisbury, the Museum is indebted for the collection from several mounds on Devil River, on the west shore of Lake Huron, consisting of human remains and objects found with them. These mounds were explored by Mr. Henry Gillman who published a short account of them in the American Naturalist for January last.

We have also recently received another specimen of the singular Mexican T-shaped implements, made of copper, similar to those from Oaxaca which I described in the last Report. For this specimen we are indebted to Dr. P. J. J. Valentini, who was so kind as to send it to me as an expression of his appreciation of my article on Mexican copper implements. This specimen is much smaller than any described in my paper, and, as Dr. Valentini points out, could hardly have been used as a hoe. He writes me he has come to the conclusion that after sharpening the semilunar edge and giving to the shank a proper handle, we should have a knife of similar shape to that in use by leather workers today. He also states various reasons for believing the Mexicans had some such cutting implement. In support of this theory I may mention that we have in the Museum small *bronze* knives with semilunar blades from Peru, and were these Mexican implements provided with sharp cutting edges, I should have no hesitation in agreeing with Dr. Valentini that they were knives. The blunt, dented, and generally battered condition of the semilunar edges of all which I have seen, however, indicates a rougher use

than would be made of knives, so that I am rather inclined to regard them as tools used in some of the arts; it may be in that of the potter. They would answer admirably for scraping and shaping clay vessels in the same manner as thin pieces of wood or gourd are now used by the natives of both North and South America. That the several specimens which have come to my hands have been used, and are not simply implements in the rough, is also shown by the rounded and polished semilunar edges of all when examined under a lens. The purpose for which these implements were made, however, cannot yet be considered as determined.

The small lot of native weapons from the Island of Java, collected in 1825 by Dr. D. F. G. Van de Sand, and presented by his daughter, Mrs. B. Pickman Mann, adds several forms of weapons new to our collections.

To Dr. Samuel Kneeland we are indebted for an instructive series of specimens, illustrative of the customs and manufactures of the natives of the Philippine Islands; besides articles from Japan, Samoa, Fiji, New Britain, the Caroline Islands and the Pacific coast of America, which in the course of his recent travels he was so thoughtful as to collect expressly for the Museum.

Principal J. W. Dawson, of McGill College, Montreal, has given to the Museum, two nearly perfect crania, pieces of pottery, and several casts of pipes, representing the objects found in excavating within the college grounds, the site of the old Indian village of Hochelaga. An account of these excavations and discoveries was published by Dr. Dawson several years since in the "Leisure Hour."

From Mr. J. Sutton Wall, we have received a photograph of one of the "Picture Rocks" in Pennsylvania, which is of particular interest for comparison with Dighton Rock and other Indian pictographs.

The Archæological Institute of America has presented a large lot of fragments of ancient pottery, stone implements and other objects collected by Mr. A. F. Bandelier, on the sites of old pueblos and ruined cliff-houses in the valley of the Rio Grande and other places in New Mexico, during his expedition of 1882, under the direction of the Institute.[8] This collection is of especial

[8] Since this was written, Mr. Bandelier's Report to the Institute has been printed in the first number of its Bulletin and contains much valuable information relating to the collection here referred to.

value as it is from so many sites of ruins of different periods, and confirms the statement which I have several times had occasion to make, that the ancient pottery of the Pueblo tribes is far superior to that now made at the inhabited pueblos. None of the pottery is glazed, using the word in its proper sense, notwithstanding the statements of some writers to the contrary, but much of it is decorated with a colored substance which has a glossy surface, and the thin wash of light colored clay with which some of the specimens are coated has, from its high polish, the appearance of glaze. All the ancient pottery is burnt very hard, and is in this and other qualities unlike the trash sold in the stores as Pueblo pottery. Most of the latter is made by the Indians about Santa Fé, according to directions received from the dealers, and is not only of a rude character, but is often formed and decorated from designs obtained from the whites. I have even noticed that during the past year or two the figures on the pottery found by Schliemann at Hissarlik have become common on the so-called Pueblo pottery and the "suastika" is now often represented.

In this connection, and as illustrative of the demand and supply of ethnological and archæological specimens, I may mention a large carved stone, sent to the Museum subject to purchase, representing a naked child about two feet in length, which was said to have been dug up near the Eureka Springs in Arkansas. The stone was partly enclosed by a cement, which, it was said, covered the stone when it was found. This piece of carving proved to be a child of the "Cardiff Giant" family. The fraud was unquestionable, and the image was returned to its owner with a full statement of the evidence against it, and the request that the object be destroyed in the interest of science. Since then I have heard nothing more of it, and in case it has not been destroyed this notice will serve to put others on their guard. The character of the art was sufficient to show that the carving was not a piece of Indian work, either ancient or modern, but the following statement by Dr. Wadsworth of the Geological Department of the University will be convincing to all that the thing was a fraud.

Agreeably to your request, I submit, herewith, the results of my examination of the "Arkansas Stone Baby."

The image, itself, so far as could be told from the restricted examination I was allowed to give it, is composed of a fine grained, somewhat earthy,

limestone. The matrix in which the image is now partly inclosed is composed of a fine ashlike material, mixed with chalk, etc. It is cellular, porous, and absorbs water readily. Many of the cells extend from the surface of the matrix, entirely through it, to the surface of the image itself.

The cells and pores are entirely free from any matter either washed in or infiltrated; hence, it is exceedingly doubtful if the image was ever under ground, while it certainly could not have remained there any great length of time, if it has ever been so placed. The freshness of this apparently easily altered matrix also points in the same direction.

It is, however, not necessary to insist upon these points, since entirely inclosed in the matrix I find portions of *undecayed* gramineous leaves, and a fragment of coarse yellow paper, such as is used for handbills, still retaining the marks of the printer's ink!

Of course, in the light of these facts, further discussion is unnecessary.

M. E. WADSWORTH.

Museum of Comparative Zoölogy,
March 23, 1882.

This is, however, but one of the many fraudulent specimens offered for sale; we have received a number of pipes, tubes, dishes, ceremonial and other objects, made in Philadelphia and sold as having been found in such or such a locality. The variety of the articles made by the Philadelphia manufacturer, and the character of the work, are such that many have found their way into collections in this country, and not a few have supplied the foreign demand for American antiquities. A manufacturer in Indiana confines his attention chiefly to "mound-builders' pipes" which are carved from stone and offered in a systematic method to collectors. In Ohio, a large business has been done in the so-called gorgets, cut from slate, and in hematite celts. In southern Illinois, a few years ago, many specimens of pottery were made until the demand fell off, so that one manufacturer acknowledged that he was no longer paid for his trouble by their sale. Another man who made this pottery is, I believe, no longer living, but much of his work is still extant. This list might be lengthened, but it is already sufficient to show that the demand for "antiquities" is considerable in this country, and that we are not behind the old world in keeping up the supply.

Early in the year, more of the singular shoes, made from the braided leaves of the *Typha*, such as I obtained in Salt Cave, Kentucky, in 1873, were received from Mr. WILLIAM D. CUTLIFF, who accompanied me in my visit to the cave, and last winter made

another exploration of its recesses. Like the first lot, all these shoes are worn through on the sole. Mr. CUTLIFF also found several more gourds, and two fragments of cloth woven from bast, of a pattern unlike that previously found in the cave.

A small collection of fragments of pottery and a few other articles, collected in 1857 from a shellheap in Mobile Co., Alabama, were obtained by purchase, and are of especial interest on account of the similarity in character of the pottery to that with which we are now so familiar from the mounds and graves of southeastern Missouri. Several of the pieces are ornaments or handles of dishes, made in imitation of heads of birds, of mammals, and also of man, so common in the Missouri pottery, and the structure of the ware from the two localities is also the same. This is of importance in showing that the shellheap in question was made by a people closely allied to, if not the same as, those who buried their dead in the mounds of southern Missouri and Illinois. The character of the ornaments is so marked that it is impossible to consider the art of the two localities as having had distinct origins. It was certainly transmitted from one to the other, or else derived from some common source by the people of the two places. As this little collection is of much importance, and as the account of the shellheap written by Major W. T. WALTHALL is one of the earliest showing that the heaps are artificial, I give his description, reprinted from the Mobile Tribune of August 11, 1859.

The mouth of Bayou Coq d'Inde is approached by a winding woodland path, that runs along the eastern bank of the bayou from the bridge. In order to reach it from the Portersville side, one has to cross a lesser bayou, or marsh, by a ragged and rather perilous causeway, or else to make a circuit through the woods around the head of this marsh, which approaches very near to the Bayou Coq d'Inde, leaving only a narrow isthmus of *terra firma* between them. The position would be a very excellent one for defence against a hostile force in an age of rude warfare; with the gulf in front, the bayou on one side, and the marsh on the other, nearly meeting the bayou in the rear. It is easy to understand, therefore, why it should have been chosen for the site of an Indian town, village, or occasional encampment.

The "shell-bank" extends along the bayou for two or three hundred yards, forms a large mound or hillock just at its mouth, bends around towards the marsh mentioned above, and again recedes from the shore. Its general outline may be likened to that of a huge fish-hook, with the shank laid alongside of the bayou and the convexity of the curve facing the sea.

This bank is composed of oyster shells—not deposited there by any process of nature, as some have hastily imagined, for no natural cause could possibly have accumulated such an immense collection of oysters in one spot on dry land. Moreover, the shells dug from underneath are not broken or abraded, as they would have been by the action of the waves or currents, but retain their sharp and jagged edges in perfect preservation.

The whole area included by the shell-bank is about ten acres, but excluding the part in the hollow of our imaginary "hook," not occupied by shells, it may be estimated at six or seven acres. The depth of the shells from their surface to the level of the adjacent land is in some places as much as twelve or fifteen feet, but taking them throughout the whole extent the average depth may be assumed to be about seven feet. Supposing the extent to be six acres, with an average depth of seven feet, the whole bank would contain nearly 70,000 cubic yards, or about a million and a half bushels of shells! The Messrs. Rabby, proprietors of the greater part of the bank, have been, for some months, engaged in excavating it for the purpose of shelling the "Bay Road," and have already delivered some 250,000 bushels or thereabout, without apparently diminishing the bank to the extent of more than a fifth or sixth of its bulk. These are rough estimates (except as regards the amount delivered to the Bay Road Company) made merely by the eye, without the aid of any instrumental measurement, but they cannot be very remote from accuracy.

When it is remembered that this immense quantity of oysters must have been brought from distant reefs; that the settlement which consumed them must, from the nature of the ground, have been of limited extent; and that the oysters constituted but a portion—probably a small portion—of the food of the inhabitants; when all these things are considered, the curious inquirer may form some idea of the time that must have been occupied in the accumulation of this vast shell-mound.

More than a century must have passed—how many centuries it *may* have been, there are no data for determining—since the last shell was flung upon the pile by its dusky builders. Soil has gathered over it, and large trees have sprung from the soil, searching out, with their long, interlacing roots, the hidden secrets buried among these remarkable relics of former ages. In the midst of this fine grove, and on the highest part of the bank, Mr. Delmas, proprietor of a part of it, has established his residence. A little nearer the water he had erected a "store-house" for supplying the miscellaneous wants of the neighborhood. A more secluded and romantic spot could hardly have been found for such an enterprise; and one might question its adaptation for the purpose, except for the facility of access by water. The recent excavations, however, were rapidly undermining the premises at the time of my last visit to them, and the proprietor was preparing to lower his whole establishment with its contents, to the new level of the excavated part. The excavations just spoken of have brought to light some interesting secrets of the interior of the shell-bank. Great quantities of broken pottery are found, and many curious relics of rude aboriginal art, in the shape of pipes, figures of reptiles,

waterfowl, owls, and other animals, as well as human heads and busts. In many places may be seen the remains of fires — ashes and pieces of charcoal, looking as fresh as if left there but yesterday — with the bones and scales of fishes lying around. The pieces of charcoal and some of the other remains crumble to pieces on being touched.

But more curious than all are the human skeletons found scattered here and there at a depth of several feet below the surface. Some of these crumble to dust on being touched, and others are broken into fragments by the spades and picks of the workmen, but portions of them are occasionally met with in good preservation. How these skeletons came there is a question difficult of solution. There are not enough of them to warrant a conjecture that the "bank" was used as a place of general sepulture, and there are too many to admit of the supposition that it was kept sacred for the interment of a few chiefs or persons of distinction. The remains are not found in any one spot, nor do they seem to have been disposed with any regularity — scattered as they are in different places, and some lying in one direction (as regards the points of the compass), some in another. Moreover, there is nothing in the accessories, or in what we know of the shell-banks, to sustain the idea of sepulture. It is almost as difficult to believe that the remains are those of the slain in some battle fought upon the spot, and that they were left to moulder where they fell. The case of the bones found by the first French discoverers on the Isle of Massacre, or Dauphine Island, is altogether different. If our information respecting the habits of the tribes that dwelt in this part of the country were not opposed to such a supposition, we might more readily believe them to be the *débris* of cannibal banquets. Even as it is, they may have belonged to a people anterior to any of whom the traditions have reached us.

Yet another conjecture may be made, with perhaps more of plausibility. In examining the recent excavations of the shell-bank, several strata of earth, alluvium, or mould, may be observed at irregular intervals of depth below the surface of the shells. These strata are generally thin and shallow, but the most conspicuous of them is about two inches in depth. So far as the very limited observations of the writer of this article extend, the human skeletons, as well as the remains of fires, charcoal, ashes, fish-bones, etc., appear generally to lie in the midst of, or immediately below, this stratum. Speaking of the phenomenon to a gentleman who resides on the coast, he remarked that a similar deposit was left over everything after the subsidence of the great flood of 1852. May not these alluvial strata then be the effects of hurricanes and floods in former ages, which have thus left their history written among the shells of Bayou Coq d'Inde? May not the bones be those of victims of some one of these storms, which was so formidable as to sweep away the whole settlement, and deter the survivors from returning to the spot, even to gather up and bury the bodies of the dead — perhaps for years? Or it may be that some superstition intervened to the same effect.

There are serious difficulties in the way of these theories, and the data

are too imperfect to allow any of them to be urged with confidence. It is much to be regretted that some scientific observer could not be on the spot to watch the process of digging away this ancient and curious structure, and to note the facts that would throw light upon its history and the archæology of our coast. What is here stated is gathered only from the observations afforded by a few brief and hurried visits.

I have proceeded upon the supposition that the shell-bank marks the site of an ancient town or village, but even this is by no means settled. It may have been only an occasional camping-ground or place for feasting, or it may have been a winter residence for some roving tribe. A dozen, or a score, of conjectures might be offered. There are other shell-banks along the coast — one of them at the mouth of the Bayou Como, only about a mile to the eastward of Bayou Coq d'Inde — though none so extensive as the one above described.

Allowing five bushels of oysters per annum to each individual — man, woman and child — a village of five hundred persons would have been occupied six hundred years in consuming a million and a half of bushels. If there was a permanent settlement at the mouth of Bayou Coq d'Inde, it is not probable that it contained more than five hundred or a thousand persons. If there was no permanent settlement, the time requisite for the accumulation of the shells must have been still greater. View it as we will, we are carried far back into the mystic depths of the past. It is a curious thought — though by no means an improbable one — that the materials, of which we are now building a road to be rattled over by the fast men of Mobile, may be the integuments of shell-fish eaten at Indian feasts when our own ancestors were crusading in the Holy Land.

Imagination revels in such fancies; and sitting on the quiet banks of Bayou Coq d'Inde, with these relics of former ages around us, we may well listen for the notes of that "mysterious music," which is said to be heard here and elsewhere on the coast — the wail of the lingering spirits of the long-departed warriors and maidens of these beautiful shores.

A gift of great ethnological value has been made to the Museum by the Heirs of E. P. Tileston and Amos Hollingsworth. This consists of one hundred and five oil portraits of Indians of various North American Tribes, of life size. Most of them are paintings of considerable merit, by C. B. King. Sixty-eight of the number are the originals of the plates in M'Kenny and Hall's "Indian Tribes of North America," published in 1836, in which work are given more or less extended accounts of the persons represented. It is understood by the heirs that other portraits belonging to the series, now in the possession of members of the families, are to become the property of the Museum in accordance with the expressed wish of the late Messrs. Tileston and Hollingsworth that the collection should not be broken.

We have also received from HARVARD COLLEGE an oil painting of a Sioux hunter, by Capt. EASTMAN.

As in the two preceding years, the books and most important pamphlets, received at the Museum are sent to the College Library to be entered in the Quarterly Bulletin of the University libraries. The card catalogue of the library has been kept up by Miss SMITH who has added many cards during the year, in the process of making an analysis of the volumes, a labor pursued as occasion admits in the intervals of her many and varied duties. Fifty-two volumes, two hundred and forty-three pamphlets and thirty-nine photographs have been added during the year.

In the work done in the Museum, in the general care and arrangement of the collections during the past year, I have been greatly assisted by Miss SMITH and Mr. CHICK, and in the cataloguing and preparation of the record of specimens received, by Mr. CARR and by Miss SMITH in whose handwriting nearly all of the entries in the catalogue have been made. Miss STUDLEY has also aided me in various ways in the Museum work.

Personally I have given considerable time to descriptive work relating to special collections in the Museum, and in working over the collections received preparatory to cataloguing and arranging them. Several days were given to picking out of the Museum collections the many objects relating to the methods of fishing among various nations. This was done at the request of Professor BAIRD for the use of Dr. RAU, in a memoir which he is preparing upon the subject. The specimens were sent to the SMITHSONIAN INSTITUTION and have been returned to the Museum. Three drawings of harpoonpoints from the shellheaps of Maine have also been made at the request of Dr. RAU, to whom also we have loaned several of our wood-cuts, for his Memoir.

At the request of Mr. W. H. HOLMES of the Smithsonian Institution, photographs, for his use in a forthcoming memoir, were made of a series of the shell ornaments from mounds and stone-graves, many of which were too fragile and too valuable to admit of sending to Washington.

A few wood-cuts were lent to the Rev. F. W. WRIGHT for illustrating his recent volume, for which also drawings of two of our paleolithic implements were made.

A small collection of objects from the Madisonville ashpits, and a few stone implements from the Southern States were sent to Mr. JOHN EVANS, of England.

In the last Report I mentioned a course of ten lectures, about to take place at the Museum. These were delivered in the months of February and March last, and were attended to the full capacity of the rooms in which they were given. As already mentioned, another special course was given during the past fall; besides these, lectures have been given to a class from the State Normal School at Framingham, to the scholars of two private schools from Boston, and to a party of the members of the Young Men's Christian Union who visited the Museum by appointment. Twenty-five free lectures were thus given at the Museum during the year 1882.

Mr. Carr has prepared during the year a paper on the social and political position of woman among the Huron-Iroquois tribes, which is offered for printing in this Report.

Miss Studley has completed a paper descriptive of the human crania and bones found in the Mexican Caves by Dr. Palmer, which is also offered for publication.

Miss Fletcher has prepared several papers relating to some of the ceremonies of the Sioux and Omaha Indians, for publication in the Museum Reports.

Dr. Whitney, Curator of the Museum of the Harvard Medical School, has continued his studies upon the pathological specimens in the Museum and will furnish a full account of them for publication in this or the next report.

Miss Linton, Assistant in Chemistry at the Massachusetts Institute of Technology, has commenced a chemical study of human bones obtained from various sources, in order to ascertain if any changes take place which can be trusted as a means of indicating the antiquity of the skeletons. The materials for this interesting investigation are supplied by the Museum to which the results will be reported.

Dr. Kinnicutt, Assistant in the Harvard Chemical Laboratory, has made analyses of the metallic iron found in the altar mounds of the Little Miami Valley and will furnish a full report upon this important subject.

Numerous duties in the Museum and in the field have prevented the completion of a paper on American bronze which I hoped to have had ready for this report in continuation of the one on copper given in the preceding.

The wall-cases of the room to be devoted to the European col-

lections are nearly finished, and as soon as the long table-cases for this room are made it will receive the large and valuable collections from the Swiss Lakes, Denmark and other parts of Europe, which have so long been kept out of sight in drawers. Plans have been made for putting a number of cases in the galleries of the hall, which, I trust, will be carried out during the year. There will then remain to be cased the floor of the northern room of the second story, which, with the transfer of the cases now there to the osteological room on the upper floor, and the finishing of the wall-cases in the office, will complete the casing of all the available space in the present building. These additional cases, however, will not permit the exhibition of more than two-thirds of the collections now in the Museum. The work of eliminating and placing in drawers such objects as can be spared from the exhibition cases has been already begun. It will probably always be necessary to keep large portions of the collections in cabinet drawers, where the specimens can be had for comparison and study, however large the building may be in the future. Still it is to be hoped that the time is not distant when some liberal friend of science will provide the means for the erection of the next section of the building, so as to give room for the arrangement of the collections in proper systematic order.

The needs of the Museum are great, and while it is of the first importance to secure the means to continue the explorations in America while these are possible, there is no doubt but that a large addition to the regular income of the Museum funds is necessary in order to maintain the work it is performing at a standard commensurate with its importance.

Respectfully submitted,

F. W. Putnam,

Curator of the Museum.

Peabody Museum of American Archæology and Ethnology,
Cambridge, Mass., February 17, 1883.

LIST OF ADDITIONS TO THE MUSEUM AND LIBRARY FOR THE YEAR 1882.

ADDITIONS TO THE MUSEUM.

26145 — 26224. Earthen whistles; human faces, birds, heads, spindle-whorls, stamps and vases in terra-cotta, from Teotihuacan, Mexico; obsidian scrapers, knives, arrowheads, flakes and cores with ornaments of the same material, probably earrings; human and animal forms carved in stone and shell; stone beads and celts; a carved stone representing a human face, and a hematite celt, from Cholula; human heads in pottery with fragments of vases and a piece of worked stone from the Pyramid of Cholula; copper celts from near Tlacolula; eight figures, human and animal, carved in stone, from Tulu between Merida and Progresso, Yucatan; carved stone turtle from Mayapan; flint spearpoint from Ticul; fragments of painted pottery from the Pyramid of Izamal; architectural ornaments of stone and fragments of earthen vases from Yucatan; cast of the calendar stone and specimens of the fibre made from the Maguay plant from the plateau of Mexico. — Collected and presented by Mr. Alexander Agassiz.

26225. Fragment of steatite pot from North Eastham, Mass. — Collected and presented by Mr. Geo. A. Phillips.

26226. Stone pestle, from Nahant. — Collected and presented by Mr. J. A. Cartwright.

26227. Painted feather fan, China. — Collected and presented by Mr. Lewis C. Flanigan.

26228. Obsidian arrowhead, Suisun, Cal. — Collected and presented by Mr. Alex. Williams.

26229 — 26242. Stone implements of different forms and uses from southwest Dakota, Shirley Basin, and Hat Creek, Wyoming Ter. — Collected and presented by Mr. S. Garman.

26243 — 26244. Human cranium and part of skeleton, with fragments of pottery, from a shellheap on Fort Island, Damariscotta River, Maine. — Collected and presented by Mr. A. T. Gammage.

26245 — 26260. Stone celt, bone implement and harpoon points, from shellheap on Fort Island, Damariscotta River, Maine; fragments of pottery and broken stone implements and chips and flakes from different shellheaps near Damariscotta, Maine. — Collected and presented by Mr. Henry T. Hussey.

26261 — 26275. Rude stone and quartz implements; fragments of pottery; quartz sinkers, a grooved stone, and worked pieces of hematite and

graphite from shellheaps, and on the surface near Sag Harbor, Long Island. — Collected and presented by Mr. Wm. Wallace Tooker.

26276 — 26283. Rude implements and sinker of quartz and fragment of pottery from shellheaps near Sag Harbor; chipped quartz sinker, and a rude implement of the same material, probably a "teshoa," from Otter pond, near Sag Harbor; and a human cranium and lower jaw from near Fort Wayne, Indiana. — Collected and presented by Mr. Wm. A. White.

26284 — 26309. Human and animal heads in terra-cotta, earthen moulds, and arrowpoints and chips of obsidian and chalcedony from the fields around the pyramids of the Sun and Moon at San Juan Teotihuacan; stone celt and bead, with human heads and small cups in pottery from the fields around the ruins of Mitla; grooved stone hammer from a field at the west base of Popocatapetl. — Collected and presented by Mr. F. A. Ober.

26310 — 26339. Broken stone ornament, hammer stones, points and rude and broken stone implements, some of them the "turtle-back" pattern, from Blackman's Point, Marshfield, Mass. — By Purchase.

26340 — 26414. Stone celts, fragment of steatite pot, and stone pipe with carved face from Cullowhee, N. C.; semilunar stone knife from Bradford, Mass.; grooved stone axes from Cullowhee, N. C. and Andover, Mass.; stone knives from Cullowhee, N. C., Manchester, Mass., and different parts of the Ohio valley; stone points from North Carolina and different places in Massachusetts, Ohio, and West Virginia; fragments of pottery from Cullowhee, N. C., and Manchester, N. H., and a miscellaneous collection of stone implements from unknown localities in the United States. — By Purchase.

26415 — 26465. Fragments of pottery, plain and ornamented; stone points of different patterns, with knives, scrapers, drills and flakes of the same material from Plattsburgh, New York. — Collected and presented by Dr. D. S. Kellogg.

26466. Polished spearpoint of stone, from Plattsburgh, New York. — Collected and presented by Master Robert Douglass Kellogg.

26467. "Hennequin" sack and string, from Merida, Yucatan. — Collected and presented by Mr. Alexander Agassiz.

26468. Specimens of "Kapa" cloth from the South Sea Islands. — Collected by Capt. Thomas Prince and presented by the Peabody Academy of Science.

26469 — 26471. Bronze fish hooks from Lakes Bienne and Neuchatel. — By Purchase.

26472 — 26478. Fish-hooks of shell and bone, latter with iron barbs; arrows with bone points, and a fish-hook with a whalebone line, from the northwest coast. — Collected by Thomas Mayo, and presented by the Massachusetts Historical Society.

26479. Stone adze with handle, from New Guinea. — By Purchase.

26480. Spearpoint of hammered copper, from Trenton, N. J. — Collected by Franklin De Cou and presented by Dr. C. C. Abbott.

26481. Two boomerangs, from Gippsland, Victoria. — By Purchase.

26482. Copper spearpoint, hammered, from Trenton, New Jersey.—Collected by FRANKLIN DE COU and presented by Dr. C. C. ABBOTT.

26483—26494. Architectural ornaments of stone from the ruins of Uxmal; lintel of wood, from Chichen Itza; modern water jars and vases of pottery, some of them painted, from Mefida, Yucatan.—Collected and presented by Mr. ALEXANDER AGASSIZ.

26495—26505. Human head, bird-shaped whistle in terra-cotta, fragments of pottery, shell ornaments, a piece of bone which has been cut and burnt; plaster cast of earthen whistle, and human bones, from Cemetery Island near Progresso, Yucatan.—Presented by Messrs. ALEXANDER AGASSIZ, STEPHEN SALISBURY, JR., and QUINCY A. SHAW.

26506—26512. Fragments of pottery, some coarse, others painted and glazed, from the Cathedral yard in the City of Mexico; fragments of pottery painted and polished from the plain north of the City between Mexico and Guadalupe Hildago.—Collected and presented by Mr. D. W. LORD.

26513. Vase of carved bamboo, from China.—Presented by Prof. C. E. MUNROE.

26514—26521. Quiver made of bamboo and hide; arrows with bone, wooden and iron points, some of them poisoned; iron spear, a sword and two "Kris," from Batavia.—Collected by Dr. D. F. G. VAN DE SANDE and presented by Mrs. B. PICKMAN MANN.

26522—26525. Brass arrowhead from Buttermilk Bay, Mass.; chipped implement of stone from North Truro, and a stone flake and implement from Chilmark, Martha's Vineyard.—Collected and presented by Mr. HENRY E. CHASE.

26526—26528. Human cranium and jaw and portions of crania and jaws, from the stone graves in Williamson Co., Tennessee. Exploration of the late E. CURTIS conducted for the Museum.

26529—26550. Human crania, fragments of pottery and casts of pipes from the site of the old town of Hochelaga, now the grounds of McGill College, Montreal.—Collected and presented by Dr. J. W. DAWSON.

26551—26558. Fragments of animal bones from a lake dwelling at Laibacher Moor; bracelet from the White Nile; and earthen jars and pots of the usual Missouri patterns, from mounds near New Madrid, Mo.—Presented by Mrs. S. B. SCHLESINGER.

26559—26577. Human, animal and bird heads in pottery, earthen disk and discoidal stones, from shellheap at the mouth of Bayou Coq d'Inde, Mobile Co., Alabama.—By PURCHASE. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

26578. Cast of the skull of Daniel Boone.—Presented by JOHN MASON BROWN.

26579. Temporal bone, with exostosis in ear, from a mound at Racine, Wis. Collected and presented by Dr. P. R. HOY.

26580. Stone arrowhead from Fairhaven, Mass.—Collected by Mr. HARRY E. GIFFORD and presented by the BOSTON SOCIETY OF NATURAL HISTORY.

26581—26586. Stone maul from the Bad Lands on Cheyenne River;

arrowheads and scrapers of stone and a scraper made of a piece of gun barrel, from southern Dakota.—Collected and presented by Mr. S. GARMAN.

26587—26969. Crania and human bones; earthen pots of different patterns, two of them with "salamander" handles; stone pipes; beads, pendants, finger rings and other objects made of copper; beads, points and scrapers of bone; cylinders and digging implements of antler; polishing, hammer and sharpening stones, stone celts, points and scrapers of flint; fragments of pottery; animal bones; and pieces of cut and worked coal, bone and antlers; from the Ancient Cemetery, near Madisonville, Ohio. This collection contains many hundreds of specimens from the leaf-mould in which the human skeletons are found and from the ashpits in the hard clay below them. Exploration conducted for the Museum by the CURATOR and Dr. METZ. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

26970—26987. Grooved stone axe and rude stone implements; fragments of pottery and pieces of worked coal; unio shells, some of them perforated; broken stone ornament and unfinished pipe of the same material; animal bones and a piece of worked antler, charcoal and burnt stones, from the earth-circles on land belonging to Mr. Stiles, near the Ancient Cemetery, Madisonville, Ohio.—Explorations for the Museum conducted by the CURATOR and Dr. METZ. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

26988—26995. Human crania and other bones; and charred corn from the ashpits at Madisonville, Ohio.—Exploration conducted for the Museum by Dr. C. L. METZ and MATTHIAS BRITTON. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

26996—27054. Iron sword-hilt; hammerstones with and without pits, some of them grooved; mullers, celts and sharpening stones; drills, scrapers, knives, points, chips and broken implements of stone; animal bones and fragments of pottery, from the leaf-mould of the Ancient Cemetery at Madisonville, Ohio; hammerstones with and without pits; stone celts; broken pipe and ornaments also broken, all of stone; flint drills, knives, and points of different patterns, from various places in Ohio.—Collected and presented by Dr. C. L. METZ.

27055. Flint point from Madisonville, Ohio.—Collected and presented by Mr. DAVID RIGGLE.

27056—27062. Grooved stone axe, stone celts and a muller of the same material; broken stone gorget from Morrow, Ohio.—Collected and presented by Dr. J. T. COUDEN.

27063—27112. Hammerstones with and without pits; circular stones, some of them chipped; stone celts and mullers; points and scrapers of flint; shell beads, and pieces of cut and worked shell, bone and coal; fragments of pottery and bone points, from Sandy Ridge, Anderson Township, Ohio; flint chips and rude stone points; broken stone celt, piece of worked coal and fragments of pottery, from Fort Ancient, Ohio.—Exploration conducted for the Museum by the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

27113—27115. Fragments of pottery from Fort Ancient.—Collected and presented by Dr. J. T. COUDEN.

27116—27126. Grooved stone axes, stone celts, circular stones and chipped and broken flint points, from Turner's field, Anderson Township, Hamilton Co., Ohio.—Collected by Dr. C. L. METZ and F. W. PUTNAM; flint flake from the circle on the hill described by Col. Whittlesey; and human bones from a stone mound on Mr. Edwards' land in same township.—Exploration conducted for the Museum by the CURATOR and Dr. METZ. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

27127—27143. Chipped stone, burnt clay, fragments of pottery and flint points of different sizes and patterns, from Rock Creek, Moccasin Point, and Williams' Island, Tennessee.—Collected and presented by Gen. JOHN T. WILDER.

27144—27150. Pointed stone, probably natural form, from top of Green Mountain, Mt. Desert Island, Maine; stone pendant, stone points, and animal bones, from a shellheap at Manchester's Point, Mt. Desert Island. —Collected and presented by Miss HATTY A. HILL.

27151—27175. Charcoal, burnt clay, chipped stone, unio shell, piece of antler and fragments of pottery, from a mound on the farm of John W. Hunt, near Brentwood, Williamson Co., Tenn.; flint cores, sharpening stone and potsherds, from the surface near the same mound; disks of stone and pottery, hammerstone, burnt clay, animal bones, some of them showing marks of fire, flint chips and an earthen dish and fragments of pottery from the remains of a log structure near Dr. W. H. Jarman's house, at Brentwood, Tenn.—Exploration conducted for the Museum by the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

27176—27408. Animal bones; stone disks, chips, celts and knives; charcoal and burnt clay and stone; shells and shell beads and spoons, and a carved "totem" of the same material; bone implements; pearl bead; piece of bark, and a number of earthen beads and bowls, dishes, bottles and cups of various forms and ornamentation, with many human crania and other human bones, from the stone-graves on Dr. W. H. Jarman's place near Brentwood, Tennessee; chipped stone points from the surface at the same place.—Exploration conducted for the Museum by the CURATOR.—Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

27409—27456. Hammer and sharpening stones; flint cores, and points of different sizes and patterns; stone drills and knives; disks of stone and pottery; human and animal heads and beads, also in pottery, and a clay ball, all from the surface, Brentwood, Tenn.—Collected and presented by Dr. W. H. JARMAN.

27457—27459. Broken stone hoe, a flint point and stone with pits on each side, from the surface, Brentwood, Tenn.—Collected and presented by Mr. JOHN F. HILL.

27460—27463. Stone celts and two grooved stone axes, from the surface, Brentwood, Tenn.—Collected and presented by Mr. W. H. CALLENDER.

27464—27481. Stone hoes and celts; discoidal stones and chipped implements; human head and small objects of unknown use in pottery, from the surface in Humphrey's Co., Tenn —Exploration of the late E. CURTIS conducted for the Museum.

27482—27485. Buffalo head, painted, decorated pipe of catlinite, sticks used as pipe rests, scalp fastened on a wand, all used in the Sun dance of the Ogallala Sioux.—Collected and presented by Dr. V. T. MCGILLICUDDY.

27486—27650. Gift wands, each one representing a pony or other property; drum sticks, bone whistle, figures of horse, man and buffalo, cut out of raw hide, wooden skewers for perforating the flesh, and other implements that were used in the sun dance of the Ogallala Sioux, together with those numbered 27482—27485. Besides these articles there are a number of others, illustrative of the life and state of domestic arts among the Sioux, Omahas, Mandans, and other tribes. Among these are specimens of buckskin with bead and porcupine-quill ornamentation; paints, painting implements and a wooden pattern stick; dolls showing the styles of dress among different tribes; necklaces and garters of beads; domestic utensils of horn and wood; two stone disks, similar to many of those found in the Ohio valley, used by the Omahas to pound corn; stone pipes; flute made of cedar; articles of wearing apparel, including cloth belts, moccasins, and a skin dress; also a bow and iron-pointed arrows, and many other things. There were also a horse's skull, tin cup, small glass vial, horse's tail and streamer, and some other articles, from the surface of an Otoe grave that had been rifled; a model of a tent of the Omahas with all the articles belonging to it, including poles, pins, and models of grain sacks. A child's moccasins from Caughnawaga, Canada; and a medicine bag with its contents complete, once the property of a Yankton Sioux.—Collected and presented by Miss ALICE C. FLETCHER.

27651—27839. Grooved stone axes; celts, hoes and pestles of the same material; hammer, polishing and sharpening stones; sinkers of different forms; flakes, scrapers, knives, drills and points in jasper and argillite of all the different New Jersey patterns from the surface; several palæolithics, some of them found *in situ* in the gravel, a human tooth from the grave; broken stone ornaments; brass beads, a perforated half-penny of 1688, and a stone pendant, all three found together; fragments of pottery and pieces of earthen pipes and pipe stems; and a number of rude, unfinished and broken implements of stone, from Trenton, New Jersey; worked stone, probably part of a mould and a stone bullet, from Gloucester Co., found by Mr. ROBINSON; two stone arrowheads, from County Antrim, Ireland, given to Dr. Abbott by Col. C. C. ABBOTT.—Explorations conducted for the Museum by Dr. C. C. ABBOTT.

27840—27845. Hammerstone, notched pebble, jasper drill and points from Trenton.—Collected and presented by Mr. RICHARD M. ABBOTT.

27846—28080. Bird-shaped and other ornaments of stone, and knives of the same material, from mounds in Butler Co., Ohio; ornamental axe, perforated, a stone celt and rubbing stone, from Kentucky; stone orna-

ments, points and drills, from Indiana; grooved axe, celt-gouge, points and a semilunar ornament, all of stone, from Massachusetts and Connecticut; and a large and varied assortment of stone implements and ornaments, of the characters usually found in the Ohio valley, from different places in Ohio. This collection is especially rich in articles of hematite, there being over thirty different celts of this material, besides a number of articles evidently intended for other uses.—By Purchase. Received from the Subscribers to the Research Fund of 1882.

28081—28112. Knives, points, drills and scrapers of argillite, from Trenton, N. J.— Explorations conducted for the Museum by Dr. C. C. Abbott.

28113. Carved stone pipe, from a mound in the forks of the Holston and French Broad rivers, Tenn.—Collected by Mr. E. J. Sanford and presented by Mr. Wm. E. Stone.

28114—28149. Grooved stone axes, celts, and mullers, of the same material; broken stone ornaments and a collection of spearpoints, arrowheads, knives and scrapers all of flint, from a stone mound in the southern part of Stark Co., Ohio.—Collected and presented by Dr. A. P. L. Pease.

28150—28186. Knives, spearpoints and arrowheads of different patterns, chiefly made of quartz, from Chester, South Carolina.—Collected and presented by Dr. S. E. Babcock.

28187—28291. Portraits of numerous Indians, many of them being the original paintings from which were made the plates published in the "History and Biography of the Indian Tribes of North America," by McKenney & Hall.—Presented by the Heirs of E. P. Tileston and Amos Hollingsworth.

28292. Portrait of O-ho-ka-pe, a Sioux hunter.—Painted by Capt. Eastman, and presented by Harvard College Library.

28293—28360. Human remains and animal bones; perforated shells and carved shell ornaments; points made of antler, with handles, gouge, and digging implements of the same; points, beads and scrapers of bone; cut pieces of coal; earthen pots, with fragments and ornaments of dishes; sharpening, rubbing, and hammerstones, polished stone celts, and flint scrapers, knives, drills and points; from the ashpits and leaf-mould over them, in the Ancient Cemetery near Madisonville, Ohio.—Collected by Mr. Matthias Britten, in the course of the Explorations conducted for the Museum by Dr. C. L. Metz.

28361—28369. Stone chips and arrowheads, from the surface, south of Miles Standish's Monument, Duxbury, Mass.; shells and a worked bone from a shellheap at Duxbury, Mass.—Collected and presented by Dr. J. R. Chadwick.

28370—28372. Stone arrowheads and a knife of the same material from the Longfellow estate, Cambridge, Mass.—Collected and presented by Mr. Ernest Longfellow.

28373. Long oyster shells from bank of Charles River, Cambridge.—Collected and presented by Mr. T. W. B. Clark.

28374. Eagle feather decorated. Given many years ago to the Hon. J. G. Palfrey by a Western Indian.—Presented by Miss Palfrey.

28375. Copper implement with semilunar blade from Mexico.—Presented by Dr. P. J. J. Valentini.

28376—28398. Human bones and flint points from a cave in Hart Co., Ky; shoes and strings, made from leaves of the cat-tail rush; piece of cloth woven from bark, bunches of string; braided grass; gourd vessels; shells of Unio, and a carved stone from Salt Cave, Ky.—By Purchase.

28399—28450. Bamboo seat and poisoned dagger from the Caroline Islands; stone adze with wooden handle from Island of Samoa; stone adze from Fiji; shell bracelet and stone adze from Island of New Britain; stockings and a painting on cloth from Japan; braided mat from Hawaii; hat and mats made of palm, prepared betel, shell of Placuna used in place of window-glass; palm-pith for cleaning the teeth, from the Philippine Islands; vases, bowls, dishes, bottles, pitcher of earthenware; cocoanut cup and brush; bamboo basket, foot-ball, and sieve; wooden spoon, and shoes of the same material with leather tops; hats of palm leaf, all from Manila; cotton towel of native workmanship from Ilocos, north of Manila; braided cigar case, hat of buffalo horn, and a water-proof coat made of cocoanut fibre, all of native make, from Laguno or lake region of Manila; fishing float from Legaspe, Island of Luzon; bolo or knife with wooden sheath and earthen bowl, tea pot, pitcher and jug from Tobaco, Island of Luzon; knife and specimens of cloth and hemp fibre or twine from Iloilo, Island of Panay.—Collected and presented by Dr. Samuel Kneeland.

28451—28460. Baskets made of bamboo, and of twigs, strippings and braid of the wild plantain, all Carib work, from Salibia, Island of Dominica.— Collected by Mr. S. W. Garman and presented by Mr. Alex. Agassiz.

28461–28507. Thirty-two grooved stone hammers and ten grooved stone axes, from Rio Tesuque and Pueblo of Namba, New Mexico; club stone from Santa Fé, N. M; three rubbing stones from Rio Tesuque, New Mexico.—By Purchase.

28508—28995. Obsidian chips, flakes, arrowheads, knives and an implement of unknown use; flakes and chips of chalcedony and moss agate; stone chips, points, and knives; grooved stone axes and hammers; metates and manos or grinding stones; a polishing stone and a door sill of stone; turquoises and copper ore; innumerable fragments of pottery, plain, colored and otherwise ornamented, from many different ruins of Pueblos in New Mexico.—Collected by Mr. Ad. F. Bandelier and presented by the Archæological Institute of America.

28996—29036. Fragments of pottery, painted in different colors and otherwise ornamented; feet and legs of earthen dishes, and portions of clay images in human and animal forms; spindle whorls in pottery; obsidian chips; shells of Unio and oyster; shell ornament and teeth and bones of animals, from a mound near Tampico, Mexico.—Collected by E. H. Whorf, and presented by Dr. Walter Faxon, Cambridge.

29037—29045. Hair of a Carib Girl from Island of St. Vincent; hair of a French creole Girl from Guadaloupe; pipe made by the negroes of St. Lucia; mass of obsidian from Reglia; painted gourd and brush made of fibres from Oaxaca, thread made from agave, model of a fire fan and

a toy dish from Puebla, Mexico.—Collected and presented by Mr. F. A. Ober.

29046. Stone beads from Chiriqui.—Collected and presented by William Nelson.

29047. Large ceremonial implement made of Catlinite, obtained from an Indian near Redwood, Minnesota.—Collected and presented by Mr. W. Hudson Stephens.

29048. Carved stone representing a turtle from Washington Borough, Penn.—Collected by G. W. Cally, and presented by Dr. C. C. Abbott.

29049—29088. Fragments of pottery; animal bones, some of them showing marks of workmanship, stone scrapers, arrowheads, chips and hammerstones, from shellheaps on Damariscotta river and Muscongus Island; fragments of pottery and piece of a human bone from Tatman's Island in Damariscotta river; small cylinders of clay (natural forms) from the banks of Madomac river, Maine; and a hammerstone and pebbles from the surface near Damariscotta, Maine.—Collected by Mr. Fellows S. Knowlton, and presented by Mr. James E. Knowlton.

29089. Cranium and portion of human skeleton, from the Great Oyster Heap, Newcastle, Maine.—Collected and presented by Mr. Charles Metcalf, through Dr. R. C. Chapman.

29090—29100. Shells of different kinds, fragments of pottery, a burnt stone, piece of charcoal and animal bones from the great shellheaps on the Damariscotta river, Me.—Exploration conducted for the Museum by the Curator. Received from Subscribers to the Research Fund of 1882.

29101—29275. Hammer and whetstones, stone arrowheads, spearpoints, drills, knives, celts, chisel and scrapers, one of the latter being a new form; animal bones; points and handles of antler; arrowheads, harpoon points, and other implements of bone; numerous fragments of pottery, from shellheaps along the Damariscotta river and in that neighborhood; iron spearpoints, an iron axe and a clay pipe, all of European make, from a shellheap at Keene's Point, Maine.—Collected and presented by Mr. Albert J. Phelps.

29276—20278. Bone harpoonpoint, and animal bones from a shellheap on Hodgdon's Island.—Collected and presented by Mr. Abram T. Gammage.

29279—29300. Animal bones, stone chips and fragments of pottery from shellheaps at Smelt Brook, Damariscotta River.—Collected and presented by Mr. M. H. Gammage.

29301—29475. Animal bones in great quantities; shells of different kinds, and specimens of broken shells, ashes and other materials of which the shellheap at Keene's Point is composed; carved bone and several bone points; a piece of worked antler; fragments of a large pot and numerous fragments of pottery; hammerstones, with scrapers, pestles, celts, points, chips and flakes of stone from different shellheaps on the lower part of the Damariscotta River, and on Muscongus Sound, Maine.—Collected by Messrs. A. J. Phelps, A. T. Gammage, S. L. Chapman, Eben Putnam,

and the CURATOR, in the course of an exploration conducted for the Museum by the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

29476—29521. Fragments of crania and other human bones; piece of burnt clay; flint chips, points and scrapers; fragments of pottery; red ochre, and animal bones, from mounds on Devil River, west shore of Lake Huron.—Collected by Mr. HENRY GILLMAN, and presented by Hon. STEPHEN SALISBURY.

29522—29523. An Idol and two paddles made by the Bush Negroes, Upper Surinam, Dutch Guiana.—Collected by Mr. JOHN H. ABBOTT. BY PURCHASE.

29524. Queue of a Chinaman. Presented by Mr. JOHN H. ABBOTT.

29525. Corn cobs from ancient ruined Pueblo, Kane Co., Utah.—Presented by Mr. E. A. BARBER.

29526. Human cranium from shellheap on Fort Island, Damariscotta river, Me.—Collected by Mr. A. T. GAMMAGE, and presented by Dr. R. C. CHAPMAN.

29527–30139. Human bones, animal bones, shells, burnt earth and clay, fossils, stone implements, copper implements, ornaments of copper and shells, terra-cotta jars and fragments of pottery, and various other things from the thirteen mounds forming the group on the land of Mr. Wm. Turner in the Little Miami Valley, Ohio. Several of the mounds of this group contained basins of burnt clay or "altars," two of which were cut out and brought to the museum. On two other altars were found thousands of relics, consisting of small pottery images, of a peculiar style of art, representing men and women, elaborately carved stone dishes, several pendants of stone made in a singular manner, beads made of stone; carved shells and bones, a pendant of buffalo-horn; over fifty thousand pearls, most of which are perforated; thousands of small shells perforated for use as beads, thousands of shell beads, and large numbers of perforated teeth of the wolf, black bear and grizzly bear; numerous ornaments of various shapes made of shell, several hundred bones from the feet of deer, the astragalus; a number of fossils, many water-worn stones of singular shapes, and water-worn or rounded pieces of soft coal. With these and hundreds of other objects were a large quantity of ornaments cut out of mica, some of them representing the heads of animals, and one a grotesque human head; also three large sheets of mica. There were also hundreds of ornaments made of native copper, including beads, scrolls, bands, circles, and various other shapes, ear-ornaments and pendants, besides several masses of native copper. A number of wooden beads were covered with thin pieces of copper, others with native silver. Several fragments of a thin piece of native gold were found which probably covered some other object. On one of the altars were several masses of meteoric iron with a number of ornaments made of the same metal. For a more extended account of this important collection, see the preceding pages.—Explorations of Dr. C. L.

METZ and the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

30140–30150. Shells, animal bones, fragments of pottery, pieces of mica, flint-flakes, charcoal and ashes, from the refuse pile in the centre of a stone covered mound on the south bank of the Little Miami River, near the group of mounds mentioned in the last paragraph.—Explorations of Dr. C. L. METZ and the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882.

30151–30158. Stone implements, flint points, burnt earth, charcoal, etc., from the Langdon mound, near Red Bank, Hamilton Co., Ohio.—Explorations of Dr. C. L. METZ and the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND of 1882.

30159–30161. Worked bone, flint flake, burnt earth with charcoal, and material from pits under a mound six feet high and sixty feet diameter, surrounded by an earth-circle one hundred and fifty feet in diameter, on the land of Mr. William Gould, near Reading, Hamilton Co., Ohio.—Explorations of Dr. C. L. METZ and the CURATOR. Received from the SUBSCRIBERS TO THE RESEARCH FUND of 1882.

ADDITIONS TO THE LIBRARY.

Dr. C. C. Abbott, Trenton, N. J. Two pamphlets.

Académie d'Archéologie de Belgique, Anvers, Belgium. Four volumes Annales, ten parts Bulletin.

Academy of Natural Sciences, Davenport, Iowa. One number Proceedings.

Academy of Science, St. Louis, Mo. One volume Transactions.

Mr. A. Agassiz, Cambridge, Mass. Two volumes. Two Reports and five numbers of Bulletin of Mus. Comp. Zoöl.

American Antiquarian Society, Worcester, Mass. Two numbers Proceedings.

American Museum Natural History, New York, N. Y. Report and three numbers Bulletin.

American Philological Association, Cambridge, Mass. Pamphlet.

Anthropological Institute of Great Britain and Ireland, London, England. Four numbers of Journal.

Archæological Institute of America, Boston, Mass. Report. One volume.

Astor Library, New York, N. Y. Report.

Mr. E. A. Barber, Philadelphia, Penn. Three pamphlets.

Mr. John M. Batchelder, Cambridge, Mass. Two volumes.

Bridgeport Scientific Society, Bridgeport, Conn. Three pamphlets.

Dr. Daniel G. Brinton, Philadelphia, Penn. Pamphlet.

Mr. Lucien Carr, Boston, Mass. Two volumes, two pamphlets.

M. Emile Cartailhac, Toulouse, France. One volume, four pamphlets.

Mr. Theo. S. Case, Kansas City, Mo. Twelve numbers of Kansas City Review.

Cayuga County Historical Society, Auburn, N. Y. One volume, two numbers Collections.

Prof. John Collett, State Geologist of Indiana, Indianapolis, Ind. Report.

Prof. George H. Cook, State Geologist of New Jersey, New Brunswick, N. J. Report.

Prof. J. P. Cooke, Cambridge, Mass. Two pamphlets.

Dr. E. H. Davis, New York, N. Y. Pamphlet.

Mr. Henry B. Dawson, Morrisania, N. Y. Thirty-four pamphlets.

Department of the Interior, Washington, D. C. One number Bulletin. Two volumes.

Editor Scientific American, New York, N. Y. Paper for the year.

Essex Institute, Salem, Mass. Nine numbers Bulletin.

Exposition de l'Art Ancien, Liege, Belgium. One volume.

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ON THE SOCIAL AND POLITICAL POSITION OF WOMAN AMONG THE HURON-IROQUOIS TRIBES.

By Lucien Carr, Assistant Curator.

In studying the accounts that have come down to us of the manners and customs of the American Indians, their religion, form of government and material progress, we cannot but be struck with the similarity that prevailed everywhere, in early times, among the tribes that lived east of the Mississippi and south of the St. Lawrence and the great lakes. In fact, so alike were they in each and every one of these particulars that we are justified, notwithstanding certain linguistic differences, in accepting, almost without qualification, the statement of the old chronicler that whoever had seen one Indian had seen all.[1] Of course this is but another way of saying that they had reached the same level of civilization, and although the assertion has met with some opposition, yet it is believed to be as true of the tribes that held this region two hundred years ago as it is of the white people who live here to-day. That there were certain differences, of more or less importance, in the domestic arts, and possibly in some of the customs of the various tribes is unquestionably true, just as it was true of individuals of the same tribe; but this no more presupposes a difference in the civilization of those tribes than the differences which are found to exist to-day, in the laws and occupations of manufacturing Rhode Island and agricultural Indiana imply a difference in the civilization of the people of those two states. To assert the contrary is to assert that skill or proficiency in some one of the mechanic arts, or a difference in some custom, as for

[1] "If we have seen one American, we may be said to have seen them all, their color and make are so nearly the same:" Ulloa quoted in Note XLV, Vol. I, Robertson's History of America: London, 1777. "Ils ont tous foncièrements, les mêmes moeurs et usages, de même que la manière de parler et de penser; ayant les mêmes sentiments les uns que les autres:" Le Page du Pratz, Histoire de la Louisiane, Vol. III, p. 217: Paris, 1758. "C'est pourtant par-tout le même esprit de Gouvernement, le même génie pour les affaires, la même méthode pour les traiter, le même usage pour les Assemblées secrettes & solemnelles, le même caractere dans leurs festins, dans leurs danses, & dans leurs divertissements:" Lafitau, Moeurs des Sauvages Ameriquains, Vol. I, p. 530: Paris, 1724.

instance in some one of those relating to marriage or divorce, is a test of civilization; and this will scarcely be maintained in the face of the different, not to say contradictory, laws upon these very subjects that are now in force in different sections of our own country; nor will it accord with the fact that the Navajo women of to-day weave blankets which, in texture and coloration, compare favorably with the best products of modern looms. Unquestionably, proficiency in some one art, or the absence or prevalence of a certain custom, may, to some extent, measure the progress of a people in that particular direction; but as neither of these conditions necessarily implies a corresponding advance along any other line of development, they do not, either singly or when taken together, aid us very materially in fixing the place of a people in the scale of civilization. To do this with any degree of accuracy, we have to take into account all the different factors that enter into the mental, moral and material life of a people and see how far they exceed, or fall short of some level which, be it never so arbitrary, is for the time being assumed as the standard. Judged in this manner, these tribes will be found to hold a middle place between savagery and civilization, or if it be desired to go a step farther and define their position still more closely, we may, I think, justly claim for them a place in what Morgan terms the middle stage of barbarism and not in the lower, to which he has seen fit to relegate them[2]. However, in matters of this kind, names count for very little; and this classification, useful as it undoubtedly is to the special student, can give but a very inadequate idea of the actual condition of a people. To supply this deficiency as far as may be consistent with the purposes of this investigation, it will be sufficient to say that these Indians lived in fixed villages and cultivated among other things both corn and tobacco. Slavery was more or less common among them and so, also, in some shape was the worship of the sun.[3] Ostensibly they were governed, so far as they submitted to any form of government, by a council of chiefs and elders, whose authority, however, extended no farther than their power to persuade and was, as we shall see later on, shared by, if it did not ultimately reside wholly in, the women of

[2] Ancient Society, p. 16: New York, 1877.

[3] The reader is referred to a paper entitled "The Mounds of the Mississippi Valley, historically considered," in Vol. II, of the Memoirs of the Kentucky Geological survey, in which I have discussed these matters at some length.

the tribe. In the manufacture of implements and weapons they had reached what is known as the stage of polished stone, that being the material usually employed, though bone and horn were also used. Of the art of reducing ore they appear to have been entirely ignorant, and the articles — chiefly ornaments — of copper, with here and there one of silver or gold, found among them were made of the native material simply hammered into shape.[4] With the manufacture of pottery however, they were well acquainted and their pots are said to have been well made and of different sizes, "some being large enough to hold ten gallons." They also had "large pitchers to carry water; bowls, dishes, platters, basons and a prodigious number of other vessels of such antiquated forms as would be tedious to describe and impossible to name.[5]"

This is, in brief, a somewhat fragmentary account of the condition of the tribes east of the Mississippi at the date of the discovery, and however imperfect it may be, it is believed to be substantially accurate as far as it goes. To this extent, then, it furnishes data for a correct estimate of the advance made by these peoples, along some of the different lines over which it is necessary to pass in the progress from savagery to civilization; and though it is confessedly incomplete in that it fails to indicate the precise point which each tribe had reached on each and every separate path, yet it is sufficiently explicit and comprehensive to enable us to say, with certainty, that they were moving on the same or rather parallel lines; and also, in a general way it justifies the conclusion that they had attained to about the same stage of social organization and material development.

[4] It is possible that the native copper may in some cases have been melted before it was thus hammered. Champlain (Voyages, Vol. II, p. 236: Boston, 1878) was told that the Indians gathered copper in lumps and "having melted it, spread it in sheets, smoothing it with stones," and the Knight of Elvas (Hist. Coll. Louisiana Part II, p. 149) says that De Soto heard of a province to the north, named Chisca, where "there was a melting of copper, and of another metal of the same color, save that it was finer, and of a far more perfect color, and far better to the sight; and that they used it not so much because it was softer." In Hakluyt's voyages, III, pp. 315 and 317, Ralph Lane tells us that though "this mineral be but copper, seeing the Sauages are able to melt it, it is one of the richest minerals in the world." Hariot in Hakluyt's voyages, III, p. 327, speaks of ornaments of silver, "grossly beaten;" and in pp. 67 and 132 of Strachey's Virginia (Publications of Hakluyt Society: London, 1849) we are told of ornaments of beaten copper. Nearly all the old writers speak of the abundance of copper ornaments among the Indians.

[5] Adair, History of the North American Indians, pp. 421 and 424: London, 1775.

This is a matter of some importance in studying the condition of our Indian tribes, and in the course of the present investigation it will be found to come to the surface quite frequently, for the reason that, in many instances, it is not possible to prove that a certain rite or custom prevailed among any particular people by the direct testimony of competent witnesses. Our accounts, even of the tribes that are best known to us, are so often wanting in details that we are obliged to resort to the inferential method in order to get any idea of their institutions. This is unfortunate, but it is unavoidable; and though this mode of investigation may, at times, be somewhat unsatisfactory, yet it would be a grave mistake to suppose that conclusions, reached by this process, are always deficient in logical force. So far is this from being the case that, not unfrequently, they are as binding and necessary as is the sequence of cause and effect in the daily concerns of life. Especially is this true of those institutions that depend upon each other for their existence, or which have grown, one from another. As an instance of this, let us take a people of whose social organization we know nothing except that they were divided into gentes, and see how far it is possible to understand their marriage laws. At first sight, this foundation would appear to be too slight to justify its use as a basis for reconstructing a whole network of customs, and yet so inseparably is this manner of dividing a tribe connected with certain restrictions upon the limits within which marriage might take place, that the one being granted the other may be assumed as a matter of course. Of a precisely similar character were many of the institutions that entered into the social and political organization of our American Indians. Almost without exception they will be found to have flowed from the division of the tribe into gentes, though the direction seems to have been given to the stream by the no less important fact that, as a rule, descent and inheritance were transmitted through the female line. Thus upon the death of a chief whose office was hereditary, as was the case with the Iroquois sachems, he was succeeded not by his son, but by the "son of a sister or of an aunt or niece on the maternal side;"[6] and as his property, at least all of it that was

[6] Lafitau, Moeurs des Sauvages Ameriquains, Vol. I, p. 471: Paris 1724. Morgan, Ancient Society, Part II, Chap. II, treats this subject very fully. He places the order of descent "from brother to brother or from uncle to nephew." The same rule prevailed in Virginia according to Strachey, *l. c.* p. 70, and Hawkins tells us that among the Creeks on the death of a Micco "if his nephews are fit for the office, one of them takes his place as his successor; if they are unfit one is chosen of the next of kin, the descent being always in the female line:" Sketch of the Creek country, p. 69.

not buried with him, was hereditary in his gens, it fell to the same parties and could not descend to his child for the reason that, by their peculiar laws of marriage, a child[7] and its father must necessarily belong to different gentes. This mode of reckoning descent was very general among our American Indians, and it is important to have this in mind when investigating their customs, as it is believed to furnish the key to the study of their whole social organization. In fact there is no other way of accounting for many of their institutions, and notably for that singular phase of society in which woman, by virtue of her functions as wife and mother, exercised an influence but little short of despotic, not only in the wigwam but also around the council fire. Even among the Iroquois, those fierce and haughty warriors, who swept as with the besom of destruction, from the Atlantic to the Mississippi and from the St. Lawrence to the Cumberland, her influence was absolutely paramount.[8] Chiefs, warriors and councils were all obliged to yield to her demands when authoritatively expressed; and there are few scenes in Indian story more dramatic, than those in which the eloquent Red Jacket, and that magnificent half-breed, Corn-planter, were constrained to do her behests in the face of their repeated declarations to the contrary. This is perhaps a somewhat startling assertion to be made in reference to the most warlike of all our American tribes, and yet a moment's reflection will convince us that it ought not to occasion any surprise, since the condition it describes is believed to be the legitimate outcome of that state of affairs in which, to use a common expression, the woman carried the gens.[9] Bear in mind that among them the gens or clan, with its privileges and obligations, was, in reality, nothing but a brotherhood of individuals bound together by ties of blood, and it will at once be seen why woman, through whom, alone, this bond of union could be

[7] "Children took nothing from the father, but they inherited their mother's effects." Ancient Society, p. 153. Les enfants . . sont censez de la cabane et de la famille de la femme, et non point de celle du mari. Les biens du mari ne vont point à la cabane de la femme à laquelle il est étranger lui-même; et dans la cabane de la femme, les filles sont censées héritieres par preference aux mâles parce que ceux-ci n'y ont jamais que leur subsistence:" Lafitau, Vol. I, p. 73: Paris, 1724.

[8] "Rien n' est cependant plus réel que cette superiorité des femmes:" Lafitau, Vol. I, p. 71. "Car outre cette Ginéocratie, qui est absolument la même que celle des Lyciens, et où le soin des affaires n' est entre les mains des hommes, que comme par voye de procuration, etc.:" *Ibid*, p. 463.

[9] "La succession au Trône dans la ligne collaterale maternelle des neveux aux oncles, preferablement à la ligne directe des enfans aux peres était une suite de cette Ginéocratie ou Empire des femmes:" Lafitau, Vol. I, p. 80.

preserved and perpetuated, should have been accorded a prominence which can scarcely be paralleled outside of the realms of fable. However, this is a point on which it is needless to insist, as it is with the existence of this phase of social organization that we are concerned rather than with the theory of its origin. To this end, then, it behooves us to look somewhat carefully into evidence upon which the statement rests; and this, thanks to the writings of the Jesuit Fathers and the later researches of Morgan and others, is comparatively an easy task.

That the Indian woman was not the overworked drudge she is usually represented to have been, has been shown in the course of an investigation I have, elsewhere, had occasion to make into the agricultural habits of our tribes;[10] and it is, therefore, unnecessary, in this connection, to do more than refer to that paper and to give a qualified approval to the statement of Mary Jemison, who passed her life among the Iroquois and who tells us that the task of an Indian woman was not harder than that of her white sister, while her cares "were not half as numerous nor as great."[11] Certainly, if her duties be compared with those that generally fell to the share of the wives and daughters of our early pioneers, her lot cannot, in any sense, be regarded as exceptionally hard. Indeed, on *a priori* grounds, it is scarcely possible that it could have been so, since she possessed and used the right of divorce[12] equally with her husband; and it would be too great a tax upon our credulity to ask us to believe that she would have submitted to any very unequal distribution of the labor necessary to the support of the family, when she held the remedy for such an injustice in her own hands. But it is not of this phase of Indian life that I propose to speak, though it has an evident bearing upon my subject and has been very generally overlooked. Neither do I intend to refer, except incidentally, to those cases in which individual women have risen to rank and influence in their respective tribes by the possession of superior abilities, greater riches,[13] or by the

[10] Mounds of the Mississippi Valley, historically considered" in Vol. II, of the Memoirs of the Kentucky Geological Survey.

[11] Life of Mary Jemison, p. 70: New York, 1856.

[12] "Amongst the Iroquois and Hurons they may part by mutual consent," Charlevoix, Letters, Vol. II, p. 50: London, 1761. "The right of voluntary separation was allowed to all:" Morgan, League of the Iroquois, p. 324. Compare Lafitau, Moeurs des Sauvages Ameriquains, Vol. I, pp. 581, *et seq.*: Paris, 1724. Hawkins' Sketch of the Creek Country, p. 73. Adair, p. 139. Bartram, p. 515.

[13] The curious in such matters may refer to Drake's Indians of North America (chap. IV: fifteenth edition) for an account of the women who were conspicuous in

ostentatious display of those peculiar powers that have made the name of Messalina forever infamous. Such instances are not uncommon, and they are not confined to any particular family of tribes; but except in so far as they show that, among our American Indians, there was no insuperable barrier to the acquisition of the highest tribal authority by a woman, they do not come within the pale of this investigation. For reasons that have been given, this field has been necessarily limited, and, for the present, my observations, except when the contrary is clearly indicated, will be confined to the tribes that belonged to the Huron-Iroquois family,[14] and to those customs which, springing from institutions that were generally prevalent east of the Mississippi, may be safely predicated of all the tribes, within that area, which can be shown to have reached the same stage of development, and in which the conditions necessary for the growth of these customs are known to have existed. As an instance of this method of procedure, let us recur to our illustration of a people of whom we know nothing save that they were divided into gentes, and add to it the additional facts that descent among them was in the female line, and that their highest expression of tribal authority was to be found in a council of chiefs and elders. In this sequence of institutions may be seen the two extremes of a singular phase of social and political organization; and with this fact clearly understood, it is believed to be perfectly legitimate to infer that in any tribe of which the two can be predicated, the intermediate stages, connected as they must have been like the rounds of a ladder, did not differ from those that are known to have existed among the Iroquois, among whom the ideas peculiar to this stage of development had crystallized into a definite form. Regarded,

King Philip's war. See also St. Cosme, in Shea's Early Voyages (p. 63: Albany, 1861), for an account of a woman among the Illinois, who was very influential on account of her talent and liberality, and because "having many sons and sons-in-law, all hunters, she often gives banquets," etc. Carver (Travels, pp. 41, 245 and 259: London, 1781) speaks of women who were chiefs among the Saukies, Dakotas and Winnebagoes. In the latter instance, however, descent being in the female line, she is said to have inherited the position. Besides these, we have the "Caciquess of Cofachiqui" mentioned repeatedly by the chroniclers of De Soto's expedition; the queen of Tuckabatchee (Creek) who proposed marriage to Hawkins; the Squaw sachems of New England, who were found so useful whenever the whites wanted to buy land, etc., etc.

[14] Speaking of these tribes, Lafitau, Vol. I, p. 463, says: "On voit dans chacun la même distribution des familles, les mêmes Loix de police, le même ordre; en sorte que qui en voit un les voit tous." In the first volume of the Publications of the Bureau of Ethnology, Washington, 1881, Major Powell gives an account of the social and political organization of the Wyandots, a Huron tribe, to which the reader is referred.

then, from this point of view, a study of the customs of this family of tribes possesses an added interest, since it not only offers a field for investigating a phase of civilization of which it is, perhaps, the best exemplar, but it supplies, at the same time, the necessary material for filling in the picture of the social and political institutions of tribes of whose organization we have nothing but the outline sketch.

Before, however, entering upon this branch of my subject, it may be well to premise that in the course of this investigation the two primary facts of the division of our American tribes into gentes, with descent in the female line will be taken for granted. Morgan[15] has gone into these subjects very thoroughly, and though there may be instances, as among the Ojibwas, in which the rule of descent had been transferred to the male line, yet it is very evident from what Schoolcraft[16] has told us of customs that existed in this tribe, even in his day, that this change had taken place in the not very distant past. Be this as it may, there can be no doubt that in the Huron-Iroquois family of tribes, as well as among those that lived south of the Ohio, the older form of descent prevailed; and even among the Algonquins of the north it was the exception to find a people among whom it had been changed. Assuming then these two fundamental facts, we are prepared to examine the accounts that have come down to us of the organization of the Iroquois and incidentally of the other American tribes, in order to find out exactly what the old chroniclers tell us of the social and political position held by the women.

Beginning with the domestic side of the question, as being the first in time as well as in importance, it will be found that everywhere east of the Mississippi and south of the great lakes, our American Indians, at the date of the discovery, lived in what for the want of a better name, may be termed barrack-houses.[17] Among the Iroquois, these houses were long, narrow cabins of bark, with a passage way through the centre; and along this, on each side, were arranged a series of compartments, each one of which was allotted to a family. These houses varied in size, being from

[15] Ancient Society, Chap. VI: New York, 1877.

[16] Indian in his Wigwam: New York, 1848.

[17] Lafitau, Vol. II, p. 10. Van der Donck, New Netherlands, in Vol. I, Coll. N. Y. Hist. Soc., p. 197. Joutel, Journal in Part I, Hist. Coll. of Louisiana, p. 148. La Vega, Conquête de la Floride, Part I, p. 103, and Part II, p. 19: Paris, 1709. Lawson, Carolina, p. 177: London, 1718.

twenty to thirty feet wide, and of a length proportionate to the number of families that were to be accommodated. Each household was made up on the principle of kin, *i. e.*, the married women being usually sisters, own or collateral, were members of one and the same gens to which of course, their children also belonged. The husbands, however, as also the wives of the sons, when the latter were brought to the cabin (which seems to have been but seldom), would necessarily be of different gentes, since marriage within the gens, even in cases of adoption, was never allowed. Over every such household a matron presided, whose duty it was to supervise its domestic economy. After the single daily meal had been cooked at the different fires within the house, it was her province to divide the food, from the kettle, to the several families according to their respective needs. What remained was placed in the custody of another person until she again required it. Within the house, all the stores seem to have been in common, and "whatever was gained by any member on hunting or fishing expeditions, or was raised by cultivation" was added to the general stock. This is, substantially, Morgan's[18] account of the interior arrangements of an Iroquois "long house," and from the system of descent and consanguinity that prevailed among them, it is obvious that a majority of the inmates of such a household must have belonged to one and the same gens — that of the mothers. This preponderance would be increased and perpetuated by the fact that a young woman upon her marriage, did not leave her home,[19] but brought her husband into it; and so long as he remained in the cabin, and even after the young couple had gone to live with his relations or had a home of their own, he was obliged to give either the whole or a part of the game that he killed and the fish that he caught, to his mother-in-law.[20] If he proved

[18] Morgan, House and House-life of the American Aborigines, being Vol. IV of the Contributions to North American Ethnology, p. 64: Washington, 1881.

[19] "Chez nos Sauvages les femmes sont maitresses, et ne sortent point de chez elles:" Lafitau, I, p. 568. Perrot, p. 30: Paris, 1864.

[20] Charlevoix, Letters II, p. 54: London, 1761. Lafitau, I, p. 579, tells us that "toute sa chasse appartient de droit à la cabane de son epouse, la première année de son Mariage. Les années suivantes il est obligé de partager avec elle." See also Morgan, in House-life of the American Aborigines, p. 64. Perrot (Moeurs des Sauvages de l'Amerique, p. 25: Paris, 1864) says the same custom existed among the Algonquin tribes of the north and south. According to him, the young couple for the first two years after their marriage lived with the mother of the wife, and during that time it was the husband's duty to carry everything that he gained, either by hunting or fishing, home to her. Of this she gave him a part for his own mother. At the end of two

lazy and failed to do his share of the providing, "woe be to him. No matter how many children, or whatever goods he might have in the house, he might at any time be ordered to pick up his blanket and budge; and after such orders it would not be healthful for him to disobey; the house would be too hot for him; and unless saved by the intercession of some aunt or grandmother, he must retreat to his own clan, or as was often done go and start a new matrimonial alliance in some other . . . The female portion ruled the house, and were doubtless clannish enough about it."[21]

When a young couple felt brave enough to leave the maternal roof and "set up for themselves, the husband had to make a mattress for his wife, and build her a cabin or repair the one in which they were to live.[22] It was also a point of honor with him to see that his wife and children were well fed and well clothed.[23] Of this cabin the wife was the absolute mistress;[24] and not only was this true of the cabin and all that it contained, but she seems also to have owned the fields and the harvests. In fact, we are told that the whole of the land occupied by the tribe belonged to her.[25]

years, he went with his wife to live with his mother "et quand il revient de la chasse ou de la pêche, sa belle-mère luy donne une partie de ce qu'il a porté pour sa mère. S'il revient de traitte pareillement, c'est toujours aux voluntés de sa belle-mère qu'il doit avoir egard." Among the Sacs, Foxes, and Kickapoos, the young husband served his wife's parents "faithfully according to custom, which is till she has a child; after which he can take her to his own relations, or live with those of his wife. During the servitude of a young Indian, neither he nor his wife has anything at their disposal: he is to hunt, and that in the most industrious manner; his wife is continually at work, dressing skins, making mats, planting corn, etc. . . . Among the Chippewas, Ottawas, and Potawatamies, a wife is sometimes purchased by the parents of the young man, when she becomes at once his own property; but the most common mode of procuring a wife in all these nations is by servitude." Morse Report, Appendix, p. 134. Among the Indians on the Gulf coast we are told that "From the time a daughter marries, all that he who takes her to wife kills in hunting or catches in fishing, the woman brings to the house of her father, without daring to eat or take any part of it and thence victuals are taken to the husband." Cabeca de Vaca, p. 76, translated by Buckingham Smith: New York, 1871.

[21] Rev. Ashur Wright, quoted in Morgan, House and House-life of the American Aborigines, p. 64.

[22] Charlevoix, Letters, Vol. II, p. 54.

[23] Lafitau, Vol. I, p. 579: Paris, 1724.

[24] See above, Note 19, and also Charlevoix, Letters, Vol. II, p. 54. "The wigwam or lodge, and all articles of the household belong to the woman—the head of the household—and at her death are inherited by her eldest daughter, or nearest of female kin." Powell, Short study of Tribal Society among the Wyandots, *l. c.*, p. 65: Washington, 1881.

[25] "C'est en elles que réside toute l'autorité réelle: le païs, les champs et toute leur récolte leur appartiennent:" Lafitau, I, p. 72. "The women councillors partition the gentile land among the householders and the household tracts are distinctly marked by them:" Powell, *l. c.*, p. 65.

This statement is made without the least qualification by the author from whom I quote, and as an evidence of its truth we find that it was distinctly asserted at a council held in 1791. At that council, the women told Col. Proctor, the American Commissioner, " . . . you ought to hear and listen to what we, women, shall speak, as well as the sachems; *for we are the owners of this land* — and it is ours. It is we that plant it for our and their use. Hear us, therefore, for we speak of things that concern us and our children, and you must not think hard of us while our men shall say more to you; for we have told them." This statement, as to the ownership of the land, was not denied, and on the re-opening of the council, Red Jacket, through whose instrumentality it had, at a previous session, been most unceremoniously closed, was made spokesman for the women, and in that capacity was obliged to yield to demands which he had previously bitterly opposed. This he did in the following emphatic language: " Now, listen, Brother: you know what we have been doing so long, and what trouble we have been at; and you know that it has been the request of our head warrior (Cornplanter) that we are left to answer for our women, who are to conclude what ought to be done by both sachems and warriors. So hear what is their conclusion." " Brother: the business you have come on is very troublesome, and we have been a long time considering on it, ever since you came here, and now the elders of our women considering the greatness of your business, have said that our sachems and warriors must help you over your difficulties for the good of them and their children." [26] From the above extracts it will be seen, that the claim of the women was made under the most solemn circumstances, and in the most positive manner — there is no possibility of mistaking it — and as it was not disputed, we are justified in inferring that it was recognized as valid by those who took part in the council. It is true that there was no mention, at this time, of a sale of land, and that hence, under the circumstances, the assertion of this right of ownership by the women, may seem like a work of supererogation, or a mere rhetorical flourish unworthy of serious consideration. Such, however, can hardly have been the case, for some years later, at a council held in 1797, this very question did come up, and the women, having received a number of presents from Mr. Morris," are said to have fallen back

[26] Stone, Life of Red Jacket, pp. 155 *et seq.* Albany, 1866.

on their reserved rights," and in conjunction with the warriors, to have obliged the chiefs to reopen a council that had been declared closed, and to make a sale of lands upon terms which had been previously rejected. Upon this occasion, Cornplanter seems to have been selected as their spokesman, for in reopening the deliberations, he said, among other things, "that the women and warriors had seen with regret the misconduct of their sachems;" and Farmer's Brother, himself a chief, was constrained to admit that the course of the women and warriors, in thus nullifying the proceedings of a council, "was in perfect accordance with their customs."[27] These two instances—in one of which the women assert, without contradiction, that they owned the land, and in the other they take a negotiation out of the hands of a council, and in conjunction with the warriors, oblige the chiefs against their wishes, actually to sell a part of that land—if they do not confirm the statement of the old chronicler in every detail, at least justify us in concluding that, either wholly or in part, the land belonged to the women. Upon this point Morgan is very clear; and though it is evident from what he says that the claim of the women to exclusive ownership cannot be sustained, yet it is equally evident that their proprietary rights in the land were not less extensive nor less well defined than were those of the men. According to him the title was vested in all the people of the tribe,[28] including of course females as well as males; and of this there cannot be much doubt in view of the many deeds, receipts, and other official documents that have come down to us, bearing the signatures, conjointly, of the principal women, the chiefs and the leading warriors.[29]

As the women appear thus far to have owned everything in the shape of private property except the clothes worn by the men, and their weapons, it will not surprise us to learn that "the children belonged entirely to the mother and acknowledged no authority but hers."[30] Charlevoix does, it is true, in a spirit of consolation, volunteer the information that the man "if not looked upon as the father was at least respected as the master of the cabin," but unfortunately he has to admit, at the same time, that he did not know how far this custom prevailed; and that his doubts in this respect were well founded, is evident from what we know of the practice of

[27] Life and Times of Red Jacket, pp. 243, *et seq.*
[28] Morgan, League of the Iroquois, p. 326: Rochester, 1851.
[29] W. L. Stone, Life of Brant, Vol. I, pp. 62 and 499, and Vol. II, p. 575: Albany, 1865
[30] Charlevoix, Letters, Vol. II, p. 53.

neighboring tribes [31] as well as of the Iroquois themselves. Notwithstanding the disadvantage, to call it by no stronger name, under which the man labored, it appears that sometimes, in cases of divorce after children had been born to the parties, the fathers did lay claim to the sons. On general principles this would seem to have been a very fair division of the children and with our ideas of right and wrong, it is difficult to understand upon what grounds this act of justice was refused; and yet we are told that the women never allowed the claim and did not hesitate to defeat it whenever made. The children, too, having grown up under the wing of the mother generally took her side in the quarrel and resented the affront which their father, by his desertion, had put upon them not less than upon her.[32]

In the matter of marriage, their customs were very simple. Except that it could not take place between members of the same gens, there does not seem to have been any restrictions upon it. The matrons of the cabins took the affair in hand, and all the arrangements were made upon the basis of interest.[33] The young people did not have much to say in the matter; in fact so little were their tastes consulted,[34] that individuals were sometimes united in this relation without their knowledge or consent, and perhaps without even a previous acquaintance.[35] It was not, however, customary for the relations of a young woman to make the first advances, "unless she remained too long in the market when her family would act underhand in order to get her disposed of, but in this a great deal of caution was used." [36] This backward-

[31] Thus among the Ojibwas, among whom descent had been transferred to the male line, we are told that "The lodge itself with all its arrangements is the precinct of the rule and government of the wife. She assigns to each member his or her ordinary place to sleep and put their effects. These places are permanent and only changed at her will: . . . Husband has no voice in the matter: . . . In the lodge the man may be looked upon as the guest of his wife:" Schoolcraft, Indian in his Wigwam, pp. 73 and 77: New York, 1848. "Among the Wyandots the head of the family is a woman:" Powell, *l. c.* p. 59.

[32] Lafitau, Vol. I, p. 569, Paris, 1724. "The children were of the tribe of their mother. No right in the father to the custody of their persons, or to their nurture was recognized. As after separation he gave himself no further trouble concerning them, . . . they became estranged as well as separated:" League of the Iroquois, p. 325. "Children irrespective of sex, belong to the gens of the mother:" Powell, Study of Wyandots, p. 63. For the prevalence of the same custom among other tribes see Lawson, Carolina, p. 185; Timberlake, memoir concerning the Cherokees, p. 66; Bartram's Travels through Florida, p. 515; Archæologia Americana, p. 285.

[33] Lafitau, Vol. I, p. 561.

[34] Lafitau, I, pp. 564, 565, League of the Iroquois, pp. 321, *et seq.*

[35] League of the Iroquois, p. 323.

[36] Charlevoix, Le ters II, p. 51.

ness, among a people as natural in their manners as were the Indians, is a little strange, since it must have been an object with them to marry off their girls as early as possible, in order to increase the strength and prosperity of the gens by the addition of their husbands to its working force of hunters.[37] A partial explanation, however, of this seeming inconsistency can be found in the fact that the matrons or women who presided over the different households were great match-makers, and they never failed to advise a young man to marry, even though they knew, that from the time that he did so, his services in the chase, etc., would no longer belong to them, but would appertain to the gens of his wife.[38] In spite, however, of the manifest advantage that would accrue to their families, the young women "do not seem to have been in any hurry to get themselves married," though this reluctance may have arisen from the fact that "in some places they were at full liberty to make trial of that state beforehand, and the ceremony of marriage made no change in their condition except to render it harder.[39]" As a rule, however, it was not an affair in which they were allowed much choice, as the old women usually arranged the matter to suit themselves. Thus we are told that when a "matron" had a son or other male relative whom she wished to see married she looked about for a young woman "of good repute, laborious and possessed of a good temper;[40] and when she thought she had found such a person, she proposed the matter to the girl's friends, and after due deliberation and the exchange of a few presents the affair was settled. Everything was conducted in the most decorous manner, not only during the preliminary arrangements, but at the marriage and even afterwards. Indeed so incredible are some of the stories told of their modest reserve, that Charlevoix, who is not ordinarily very sceptical on such subjects, feels constrained to intimate a doubt of their truth.

Polygamy or rather polygyny was never permitted among the Iroquois and according to Morgan it never became a practice,[41] though Charlevoix speaks of "nations that had wives in every quarter where they had occasion to sojourn for a while in hunting

[37] Lafitau, II, p. 163.

[38] Lafitau, I, pp. 562, 563.

[39] Charlevoix, Letters, Vol. II, p. 51. Compare La Hontan, Voyages, Vol. II, pp. 34 *et seq.*: London, 1703.

[40] Lafitau, Vol. I, p. 564.

[41] League of the Iroquois, p. 324. Lafitau, Vol. I, p. 555.

time," and tells us that "this abuse had crept in some time since among the nations of the Huron language who had always before been satisfied with one wife.[42]" This moderation, in view of the very different practice in neighboring tribes, speaks well for the Iroquois men. I am sorry, however, to say that the virtue was not imitated by the women, as they allowed themselves a plurality of husbands, at least among the Tsonnontouans (Senecas); and this the old writer thinks "was very singular and was the result of the gyneocracy that existed among them."[43]

Having married off the young people and started them to housekeeping, it would seem as if the duties of the matrons ought, so far as this particular couple were concerned, to have been about over. Such, however, was not the case, for now they had to see that the newly married pair got along together harmoniously. "If differences arose between them, it became the duty of the old people to effect a reconciliation, and by advice and counsel to guard against a repetition of the difficulty. But if disturbances continued to follow reconciliations, and their dispositions were found to be too incongruous for domestic peace a separation followed, either by mutual consent or the absolute refusal of one of the parties longer to recognize the marriage relation."[44] In early times such ruptures were considered disreputable and were therefore unfrequent,[45] but later on "the inviolability of the nuptial contract was less sacredly regarded, and the most frivolous reasons, or the caprice of a moment, were sufficient for breaking the marriage tie."[46] However, even in early times, divorces did sometimes take place in families as well regulated as those of the Iroquois seem to have been, and from the accounts of the old

[42] Charlevoix, Letters, Vol. II, p. 48.

[43] "Ce qui paroitra plus singulier, c'est que, par une suite de la ginéocratie, la Polygamie, qui n'est pas permise aux hommes, l'est pourtant aux femmes chez les Iroquois Tsonnontouans, où il en est, lesquelles ont deux maris légitime; Lafitau, I, p. 555. Among the Natchez, "the daughters of a noble family are allowed to marry none but private men; but they have a right to turn away their husbands when they think proper, and marry another, provided there is no alliance between them. If their husbands are unfaithful to them, they may cause them to be put to death, but are not subject to the same law themselves; but on the contrary may entertain as many gallants as they please, without the husband's daring to take it amiss. . . . He stands in a respectful posture, in the presence of his wife, never eats with her, salutes her in the same manner as the rest of her domestics, etc.:" Charlevoix, Letters, Vol. II, p. 265. See the whole of this letter — XXX — for an interesting account of the organization of the Natchez, the position of the woman sun, etc.

[44] League of the Iroquois, p. 324.

[45] Charlevoix, Letters, Vol. II, p. 49, La Hontan, Vol. II, p. 36: London, 1703.

[46] League of the Iroquois, p. 325.

writers, it is evident that the causes that are to-day so instrumental in producing discord were equally powerful then. It is worthy of note, however, that when such an untoward event did occur, the wife, even though the guilt was on her side, had but little reason to fear a scandal.[47] The cabin, or the portion of it occupied by the married pair being hers, it was the man who would have to leave; and even then he could not take anything with him as it was her privilege, in case of divorce, to strip him of all he had, though decency required that the present made to her at her marriage, or its equivalent, should be returned.[48]

If, on the other hand, it was the man who was at fault, if when worn out by bickering and contentions at home he ventured to set up a rival establishment in the neighborhood, he had to be very sly about it, otherwise wife No. 2 would be likely to fare rather badly. Wife No. 1 might pounce down upon her at any time and rob her of all the provisions he had given her, and he was powerless to prevent it even when done in his presence.[49] Thus tied, hand and foot, by inexorable custom, the man does not appear to have had any rights that the woman was bound to respect. From the cradle to the grave there was never a time when he was not subject to some woman who ruled him by virtue of her position in

[47] Lafitau, I, p. 585.

[48] "Une femme a droit dans le Divorce de depoüiller le mari qui la quitte, et elle le fait sans qu'il s'y oppose. Pour agir dans les formes, il faudroit rendre aussi le présent, ou un équivalent, de celui qui a été donné pour le Mariage:" Lafitau, Vol. I, p. 589. Perrot (Mœurs des Sauvages de l'Amerique, p. 22: Paris, 1864) says that among the Iroquois marriage was a mere temporary arrangement, but that among the Ontaoüacs (Algonquin) it was more permanent; and that among them, a man never divorced his wife without good reason. If he did, he would subject himself "a estre pillé et a mille confusions, puisque celle qu'il auroit quitté mal-a-propos pour en prendre une autre, se mettroit a la teste de ses parentes, et luy osterait ce qu'il auroit sur luy et dans sa cabane; elle luy arracheroit les cheveux et luy dechiroit le visage; en un mot, il n'y a point d'indignitez et d'affronts dont elle ne l'accableroit et qu'elle ne soit en droit de luy faire sans qu'il puisse s'y opposer, s'il ne veut devenir l'opprobre du village. Quand le mary n'en épouse pas d'autre, la femme qu'il a quittée peut le piller lorsqu'il revient de la chasse ou de la traitte, luy laissant ses armes seulement, qu'elle luy oste enfin s'il ne voulait absolument retourner avec elle." Among the Shawnees, etc., it is said that "not unfrequently they take away everything the husband owns, his hunting equipage only excepted:" Archæologia Americana, I, p. 285.

[49] Lafitau, I, p. 585. Perrot, *l. c.*, p. 27, says the same custom prevailed among the Algonquin tribes north and south, and adds that very often this brought on a fight between the women, when, if they happened to belong to different gentes, their relations would sometimes take part, so that in the end it would become so serious that a chief would have to interpose and quell the row. La Potherie (Vol. II, p. 32: Paris, 1753) says that sometimes blood was spilled during these fights, during which "le Mari juge des coups d'un grand sang froid: cela lui fait même plaisir, parce qu'il dit que c'est une marque que les femmes l'aiment."

the household or in the gens. If he ran away, as was sometimes done, and "established a matrimonial alliance elsewhere," he could have no assurance of bettering himself. It was a change of masters, but not of condition, and it is just possible that after one or two such experiences he might have preferred to "bear the ills he had, rather than fly to those he knew not of." Literally there was no escape for him as long as he continued to form an integral part of the tribe. The yoke was riveted at every joint, and so far as law or custom could make it, the rule of the woman was one of the most ingeniously contrived despotisms that could possibly have been devised. That it was not originally intended to be such is of course well known; but it is none the less true that in its gradual development we have an instance in which a series of customs, the legitimate outgrowth of institutions that were in themselves perfectly natural, finally resulted in giving to the woman the entire control of affairs, even of those that are supposed to have been the peculiar province of the man. In proof of this, we have but to refer to their system of levying war. Here, if anywhere, it is fair to presume, that the man ought to have been master of his own acts, and yet we find that he could not go upon the warpath unless the women were willing. Theoretically of course, he was at liberty to do so whenever he pleased, but practically he was not; for the matron of any household to which some member of his party belonged, might come in at any moment and forbid their departure; and as this was a thing that neither the chiefs nor the council could do, it is regarded by the old chronicler "as proof that her influence, in some shape, was more real even, than that of the council of elders."[50] Concurrent with this right to forbid the departure of a war party, and apparently in pure mockery of the man's helplessness, was the right, which the woman also possessed, of sending him out on such an expedition whenever she pleased.[51] These forays were not unfrequently made for the sole purpose of securing captives, or slaves for adoption into some family or gens that had, from some cause, been weakened, and as it was for the woman to decide when this was necessary or desirable, it follows that the war-making power was virtually in her hands. Thus we

[50] Lafitau, II, p. 168.

[51] "Among the Hurons and Iroquois, where the matrons command and prohibit a war as seems good to them:" Charlevoix, Letters, I, p. 317.

are told that whenever she wished to engage any one who did not depend on her, as for instance some relative by marriage, "to levy a party for war whether it be to appease the manes of her husband, son or near relation, or whether it be to procure prisoners in order to replace those in her cabin of whom death or captivity had deprived her; she must make him a present of a collar of wampum, and such an invitation was seldom found ineffectual."[52] In beating up for recruits it was not only the members of her own gens who were bound to make good her loss, but the duty also devolved upon those who were allied to it by marriage, or the *Athonni* as they were termed; and herein is said to have consisted the advantage of having many males born in the gens. For these men, though not in the line of succession, and to some extent isolated (isolés et bornéz á eux-mêmes) in their own households must marry into other gentes, and the children born of these marriages, though strangers to their fathers' gens, were obliged to aid in making good the loss of those fathers in case of death or captivity; and hence it was that the matron who was in authority in the household to which the fathers had belonged, might send these children upon the war path whenever it suited her to do so, or she could prohibit them from engaging in any warlike expedition of which she did not approve.[53] These war parties were sometimes absent for two or three years, and travelled several thousands of miles by land and water as was most convenient. When one of them returned from a successful foray, the first thing to be done was to decide upon the fate, or rather the distribution of the prisoners. Two or three were usually burned,[54] but by far the greater number, men as well as women and children, were scattered around among the different households for adoption, as it was by this means that the Iroquois were able to keep up their strength.[55] As soon as the council had come to a decision in regard to the prisoners, it was made known by a crier; and the distribution then took place in the public square without any noise or dispute. "Those women who had lost their sons or husbands in the war were commonly satisfied in the first place. Afterwards the warriors fulfilled the engagements entered into with those from whom they had received

[52] Charlevoix, Letters, I, p. 317.

[53] Lafitau, II, p. 163.

[54] Lafitau, II, pp. 272, 273.

[55] Charlevoix, *l. c.*, I, p. 372. John Bartram's Observations, p. 79: London, 1751. Colden, Five Nations, p. 5: London, 1747.

collars of wampum; if there were not a sufficient number of prisoners for this purpose, the defect was supplied with scalps, which were worn by way of ornament on days of rejoicing, but at other times were hung up at the gates of their cabins. If, on the other hand, the number of prisoners was more than sufficient for these purposes, the overplus was sent to their allies. The place of a chief was never filled up but by a chief, or by two or three slaves who were always burned. The Iroquois never failed to set apart some prisoners for the use of the public, in which case the council disposed of them as they thought proper; but the matron still had the power to abrogate their sentence, being absolute sovereigns of the life and death of those who had been condemned or absolved by the council."[56] In the case of a prisoner who had been assigned to a family, he was led to the door of the cabin and either introduced into it or left in the vestibule. If the chief matron decided to accept him, he was at once received into the family and gens, and entered upon all the privileges and assumed all the obligations of the person whose place he took.[57] But if, on the other hand, she refused to receive him and "threw him into the fire" as it was termed, he was invariably burned; for "there was no power in the tribe that could save a prisoner whom she had condemned, nor condemn one whom she had decided to save."[58]

If now we turn to the political organization of these tribes we shall find that even in this unusual sphere the authority of the women was not less real.[59] Ostensibly the supreme power of the

[56] Charlevoix, *l. c.*, II, p. 371. See Timberlake's Memoir, p. 71. for the same Custom among the Cherokees.

[57] Lafitau, II, p. 308. La Hontan, Voyages, II, pp. 80, *et seq.* Colden, Five Nations, p. 9.

[58] "Celles à qui on les donne, en sont tellement les maitresses, que l'inclination de tout le village ne scauroit les sauver, si elles ont envie de les jetter au feu, ni les faire mourir si elles ont la volonté de leur donner la vie:" Lafitau, II, p. 273. "The prisoner was presented to the wife of Half King (a Wyandot chief), but she refused to receive him, which, according to the Indian rule, was, in fact, a sentence of death:" Heckwelder, Historical Account of the Indian Nations, p. 162: Philadelphia, 1819. Compare Du Pratz, Histoire de la Louisiane, Vol. II, p. 431, and Vol. III, p. 48: Paris, 1758, for a similar custom among the Natchez. La Hontan Travels, II, pp. 80 *et seq.*, may also be consulted, and Bossu (Travels, p. 105) tells us that among the Arkansas the women decide the fate of prisoners.

[59] Lafitau, I, p. 71. Charlevoix, *l. c.*, II, p. 25, upon this subject says: "The women have the chief authority amongst all the nations of the Huron language; if we except the Iroquois canton of Onneyouth, in which it is in both sexes alternately. But if this be their lawful constitution their practice is seldom agreeable to it. In fact, the men never tell the women anything they would have to be kept secret; and rarely any affair of consequence is communicated to them, though all is done in their name, and the chiefs are no more than their lieutenants." In reply to this, it may be said, first, that

tribe was vested in a council composed of the chiefs and elders, though there is reason to believe that in all that they did they acted as attorneys for the women rather than independently and of their own volition. As a rule their decisions were respected though this was not invariably the case; and in the event of opposition on the part of any individual, he was at liberty to follow the bent of his own inclination.

Of these chiefs, there were several grades. Lafitau, whom I generally follow, speaks particularly of two, the sachems and their assistants; and so, too, does Morgan, though he places in the second rank those chiefs whose position was due to personal bravery, wisdom in affairs or eloquence in council, and was, therefore, a reward of individual merit which died with its possessor.[60] There does not appear to have been any reason why a chief should not have been chosen an assistant and *vice versa*, and it may be, that originally the two classes formed but one,[61] though they are spoken of as being distinct.[62] First in rank among these chiefs, though not necessarily so in influence were the sachems, whose duties were confined to the affairs of peace,[63] and whose office was perpetual and hereditary in the gens — the succession being always continued through the woman, so that upon the death of a chieftain of this rank he was succeeded not by his son, but by the son of a sister or of some other female relation. "The tree having fallen" they were accustomed to say "it was necessary to raise it up again," and to this end upon the death of a sachem, the matron who presided over the household to which he belonged, after consulting with the members of her family

while it is possible that the Oneidas (Onneyouth) may have adopted this form of government, yet it is not probable for the reason that both Lafitau and Morgan—an earlier and a later writer—tell us that there was no difference in the customs of the Iroquois tribes; and if the statement of Charlevoix be true there must have been a very important difference; secondly, whether the men were in the habit of concealing important business from the women is a matter that cannot well be decided at this late day. Among the Natchez they are said to have done so on one memorable occasion, and the Great Sun being severely reproved by the Woman Sun for it, revealed the secret of the conspiracy to her, and she betrayed it to the French. However, be the fact as it may, we may be very sure, from what happened at the council of 1797 and at other times, that when the women did take part in public deliberations, they carried matters with a high hand.

[60] Morgan, Ancient Society, p. 71: New York, 1877.

[61] "These chiefs were originally invested with very limited powers; their principal office being that of advisers and counsellors of the sachems:" League of the Iroquois, p. 100.

[62] Lafitau, I, pp. 474–5–6. Ancient Society, pp. 77–131.

[63] League of the Iroquois, p. 101.

("cabane") and gens ("tribu") chose as his successor the person who seemed best fitted by his good qualities to maintain the dignity of the position. In making the selection she was under no constraint, but was perfectly free to act as she thought proper without regard to age or priority of birth. A notable instance of this occurred in the case of Catharine Brant, wife of the famous Mohawk chief, who chose John the fourth and youngest son to succeed to a sachemship, to which she possessed the right of nomination, and upon his premature death, in 1832, from cholera, she named as his successor the infant son of her daughter.[64] When the selection had been made by the matron and approved by the gens, it was announced to the tribe (village), and in good time the fortunate individual was proclaimed and recognized. The same formalities were observed in announcing the election to the other tribes of the confederacy and also to their allies, and this act was always accompanied by feasts and solemnities.[65]

If the person chosen happened to be a child, as was sometimes the case, and incapable of acting for himself, it was customary to appoint a tutor or regent, whose duty it was to act for him, and to

[64] Life of Brant, Vol. II, pp. 500 and 537. I see no reason to doubt the fact as here stated, though the explanation of it is by no means satisfactory.

[65] Lafitau, Vol. I, p. 471 *et seq.* Morgan (Ancient Soc., p. 72) says: "The choice which was by the free suffrage of both males and females of adult age, usually fell upon a brother of the deceased sachem or upon one of the sons of a sister." On p. 85 he is even more explicit, saying of the council of the gens: "It was a democratic assembly because every adult male and female member had a voice upon all questions brought before it. It elected and deposed its sachems and chiefs, it elected keepers of the Faith," etc. Charlevoix, Letters, II, p. 23, tells us that "at the death of a chief it is not his own but his sister's son who succeeds him; or in default of which, his nearest relation in the female line. When the whole branch happens to be extinct, the noblest matron of the tribe or in the nation chooses the person she approves of most and declares him chief." The Rev. Ashur Wright for many years a missionary among the Iroquois writes as follows to Mr. Morgan: "the original nomination of the chief always rested with them (the women)": House and House life of the American Aborigines, p. 65. Maj. Powell in Vol. I of the Publications of the Bureau of Ethnology, p. 61, says of the Wyandots: "In each gens there is a council composed of four women. These four women councillors select a chief of the gens from its male members — that is from their brothers and sons . . . The tribal council, therefore, is composed one-fifth of men and four-fifths of women. . . . The four women counsellors of the gens are chosen by the heads of the households, themselves being women. There is no formal election, but frequent discussion is had over the matter from time to time, in which a sentiment grows up within the gens and throughout the tribe that, in the event of the death of any councillor, a certain person will take her place. . . . When a woman is installed as councillor a feast is prepared by the gens to which she belongs, and to this feast all the members of the tribe are invited. The woman is painted and dressed in her best attire and the sachem of the tribe places upon her head the gentile chaplet of feathers, and announces in a formal manner to the assembled guests that the woman has been chosen a councillor."

do everything that he might be called on to perform for the public good. This, in their figurative language, was termed "adding roots to the tree."

Besides the sachems, and by way of a check upon any ambitious schemes that they might entertain, there was a grade of chiefs called assistants or *Agoianders*, without whose consent the sachems could not undertake anything. It was their duty to have an eye to the public treasury, provide for its safety and determine the manner in which it was to be expended. Each gens in a tribe was entitled to one representative of this rank, and like the sachems, he, too, was chosen by the women. Indeed, they sometimes named one of their own number to the position.[66]

Concurrent with this right to name a chief and in some shape complementary to it, was the power to depose him, and this also is said to have been vested in the women. Mr. Wright for many years a missionary among the Senecas asserts it in the following emphatic terms:" The women were the great power among the clans, as everywhere else. They did not hesitate, when occasion required, "to knock off the horns," as it was technically called, from the head of a chief, and send him back to the ranks of the warriors." This statement is quoted by Mr. Morgan as being a "plain indication of the mother-right and gyneocracy that prevailed among the Iroquois," and he also tells us that the picture was not overdrawn,[67] though elsewhere he speaks of this power as inhering in a council of the gens. This council, however, is said to have been a very democratic assembly, in which every female member had a voice,[68] so that in either event the women must have exercised no little influence in determining the fate of a chief, even if the matter were not exclusively within their jurisdiction.

In addition to the sachems and other officers thus far mentioned, there was in every gens a certain class of persons styled Keepers of the Faith, who designated the times for holding the periodical festivals, made the necessary arrangements for their celebration and conducted the ceremonies. In a general way too, they exercised a sort of supervision over the morals of the people, remonstrating with the evil-doers, and when necessary, reporting them to the council for exposure, which seems to have been their only

[66] " . . . les femmes les choisissent et le sont quelquefois elles-mêmes: Lafitau, I, p. 475. Charlevoix, Letters, II, p. 24.

[67] House and House-life of the American Aborigines, p. 66: Washington, 1881.

[68] Ancient Society, p. 85.

mode of punishment. They also delivered religious discourses whenever such things were deemed advisable; and as they were a systematically organized body with well defined duties,[69] it is difficult to understand why they should not be styled a priesthood. To this order women were admitted in about equal numbers with the men, and to them were especially intrusted the care of preparing the feast which was provided at all councils, at the close of each day, for all persons in attendance. Their duties, however, were not confined to the supervision of the feast as "they had an equal voice in the general management of the festivals and of all their religious concernments." [70]

These chiefs, assistants and sachems were not distinguished from the mass of the common people by any outward mark or insignia of rank, and like all Iroquois officers, they received no reward for their services. There was nothing of the absolute in their sway; and in case of any opposition to their decrees, they were powerless to enforce them. Their commands were wishes — nothing more — and obedience was voluntary. This freedom of action is said to have been a check on the chiefs and to have prevented them from issuing orders that might prove objectionable and so be followed by disobedience; whilst at the same time it prompted the common people to execute willingly the orders that were given them, since they were persuaded that, in so doing, they were simply following their own inclinations and not obeying any command. Hence arose an agreement between chiefs and people and a subordination of the one to the other that would have been desirable in the best regulated government."[71]

Although, as we have seen, these sachems and chiefs had no badge of office and were really possessed of no authority beyond their power to persuade, yet they seem to have been treated with a certain degree of consideration. They were assigned a leading part in all public festivals and at the funeral ceremonies; presents were often made to them, and they presided at all gatherings. Certain other prerogatives were also allowed them, not very important perhaps, but still indicative of their rank and the respect in which they were held. Among these, the most conspicuous was the place

[69] League of the Iroquois, p. 187.

[70] League of the Iroquois, pp. 184 *et seq.* Ancient Society, p. 82.

[71] Lafitau, Vol. I, pp. 473 *et seq.* Compare La Hontan, Voyages, Vol. II, pp. 71 *et seq.*; and Colden, Five Nations, pp. 2 *et seq.*

assigned them in the transaction of public business, which was always conducted in their name. The council, too, only assembled at their request, and it met in their cabins save when there was a building especially destined for the purpose.

As these councils were the supreme deliberative body of the nation, tribe and gens respectively, and as they took cognizance of all sorts of matters and some one of them was almost constantly in session, it is important to look into their organization and method of doing business, as here, if anywhere, the influence of the women would make itself felt. Accordingly, we find that, on all occasions, the women were the first to deliberate, no matter whether the subject related solely to themselves or concerned the public welfare. They held their council apart, and having come to a determination they notified the chiefs of the matter about which they had deliberated, so that they, in their turn, might take it under consideration. The chiefs, being thus advised, assembled the elders of the tribe, and if the matter was of sufficient importance, it was referred to a general council of all the tribes composing the confederacy. At all such councils, the women were represented by their spokesman, whose duty it was to advocate their views[72] no matter how much they might clash with his own. We are also told that there were occasions when the women themselves spoke in council, and an instance of it may be seen in the council referred to above, held in 1797, when Mary Jemison was allowed to plead her own cause; and thanks to her knowledge of certain boundaries and the general lay of the land, she was granted some thirty thousand acres instead of a hundred and fifty which the commissioners thought they had allowed.[73] And not only were the women represented in the councils by their spokesmen, but they sometimes held councils of their own and acted independently of the men. Thus we find them sending a message to Gen. Schuyler, A. D., 1776, in which they object to a certain proposed movement of the American troops on the ground that it

[72] Lafitau, I, p. 483. Ancient Society, p. 117.

[73] Life of Red Jacket, p. 246: Albany, 1836. Among the Cherokees, Timberlake, *l. c.*, p. 71, tells us that "these chiefs, or headmen, likewise compose the assemblies of the nation, into which the war-women are admitted . . . Many of the Indian women being as famous in war as powerful in council . . . Old warriors, or war women, who can no longer go to war but have distinguished themselves in their younger days, have the title of Beloved." For the part taken by women in the council, on embassies, etc., among the Sioux, Houmas and Natchez, consult Carver, p. 301; Father Gravier in Shea's Early Voyages, p. 144; Charlevoix, Letters, II, p. 271.

was calculated to produce trouble. To this message Gen. Schuyler replied at a council held with the chiefs, and in the course of his answer he acknowledged the receipt of the belt sent him by the women, and he entreated them to prevent the warriors from doing anything that would have the least tendency to incur the resentment of the Americans, or interrupt the harmony which he hoped would subsist between the two peoples to the end of time. This was promised in the name of the women ;[74] but unfortunately for the Mohawks the influence of Sir John Johnson and others prevailed, and as their fighting men took part against the Americans in the war of the Revolution, the whole tribe was obliged to pay the penalty by a forfeiture of their homes in the beautiful valley that bears their name.

Even more to the point were the belt and message sent by the women of this same tribe to Sir Wm. Johnson in 1742, in which they advise him to give over a contemplated visit to the Oneidas as being fraught with danger. In it they say: "Brother, by this belt of wampum, we, the women, surround and hang about you like little children, who are crying at their parents' going from them, for fear of their never returning again to give them suck; and we earnestly beg you will give ear to our request and desist from your journey. We flatter ourselves you will look upon this our speech, and take the same notice of it as all our men do, who when they are addressed by the women, and desired to desist from any rash enterprise they immediately give way, when, before, everybody else tried to persuade them from it and could not prevail."[75]

But it is unnecessary to pursue the subject further. The evidence here presented, taken from sources that are believed to be perfectly authentic, shows conclusively that the old chronicler is not far wrong when he assures us that, among the Iroquois, and inferentially among all the other tribes east of the Mississippi, "there is nothing more real than this superiority of the women. It is they who constitute the tribe, transmit the nobility of blood, keep up the genealogical tree and the order of inheritance, and perpetuate the family. They possess all actual authority; own the land, and the fields and their harvests; they are the soul of all councils, the arbiters of peace and war; they have the

[74] Life of Brant, Vol. I, pp. 123-131-132: Albany, 1865.
[75] Life of Brant, I, p. 9.

care of the public treasury; slaves are given to them; they arrange marriages; the children belong to them and to their blood is confined the line of descent and the order of inheritance. The men on the other hand are wholly isolated and restricted to their personal affairs; their children are strangers to them, and when they die, everything comes to an end, as it is only the women who can keep up and perpetuate the family. If there are only men in a household no matter in what numbers nor how many children they may have, it is doomed; and although by courtesy they are made chiefs, and public business is transacted by a council of old men, yet they act merely as the representatives of the woman and to aid her in those affairs in which it would not be becoming for her to appear and act for herself."[76]

[76] Rien n'est cependant plus réel que cette superiorité des femmes. C'est dans les femmes que consiste proprement le Nation, la noblesse du sang, l'arbre genéalogique, l'ordre des genérations, et la conservation des familles. C'est en elles que réside toute l'autorité réelle: le païs, les champs et toute leur recolte leur appartiennent: elles font l'ame des conseils, les arbitres de la paix et de la guerre: elles conservent le fisc on le trésor public: c'est a elles qui on donne les esclaves: elles font les mariages, les enfans sont de leur domaine, et c'est dans leur sang qu'est fonde l'ordre de la succession. Les hommes au contraire sont entierement isolés et bornez a eux-mêmes, leurs enfans leur sont étrangers, avec eux tout périt, une femme seule releve la cabane; mais s'il n'y a que des hommes dans cette cabane en quelque nombre qu'ils soient, quelque nombre d'enfans qu'ils ayent, leur famille s'éteint; et quoique par honneur on choisisse parmi eux les chefs, que les affaires soient traitées par le conseil des anciens; ils ne travailloient que pour représenter et pour aider les femmes dans les choses, où la bienseance ne permet pas qu'elles agissent:" Lafitau, Moeurs des Sauvages Ameriquains, Vol. 1, pp. 71 and 72: Paris, 1724.

NOTES UPON HUMAN REMAINS FROM CAVES IN COAHUILA.

By Cordelia A. Studley, Assistant in the Museum.

In 1880 Dr. Edward Palmer procured for the Museum an osteological collection of considerable interest from four caves in the limestone formation in the state of Coahuila, Mexico.[1]

The first cave examined is in the western part of the state near San Antonio del Coyote, to whose inhabitants it is known as Coyote Cave. Its length originally was 150 feet, width 20 feet, and height 12 feet. This cave was discovered about 1865, by an Indian who told Dr. Palmer that when he led the first party into it many mummies were to be seen there carefully disposed, side by side, children between the grown people, each wrapped in its blankets and bound about with bands of netting. The treasure-hunters whom he conducted into the cave, brought out and broke up the bundles in search of gold, but finding none, they burned the human skeletons and interesting objects found with them. A small collection, it is said, was saved and sent to Spain. Since then the roof of the cave has fallen in, closing up the original entrance and filling up most of the chamber. Now, it can be entered only through a hole in the roof, by means of a rope. At the bottom of the shaft, Dr. Palmer found six bundles or "mummies" and a few scattered bones and fragments. Four of the bundles contained each a perfect cranium and nearly entire skeleton. Of the other two bundles, one contained a calvarium in pieces and a left humerus; the other, a femur, and the leg bones of several individuals, with a small enclosed bundle of bones, not yet opened. The outer wrappings of some of the bundles were encrusted with breccia to the thickness of an inch in some places.

Twenty-seven leagues southwest of Parras, near San Lorenzo de la Laguna, is the second cave Dr. Palmer explored. It is between 50 and 100 feet square. The floor inclines 55°, and the

[1] This collection is mentioned in the Fourteenth Report of the Museum, but the many interesting objects found in the bundles or loose in the caves have not yet been described. They are, however, on exhibition in two cases on the Mexican gallery of the Museum.—F. W. P.

height, which at the entrance is 15 feet, rapidly diminishes going inwards.

This may be the cave to which Dr. Wislizenus made allusion in 1847 as follows: "On the right hand or south of us,[2] a chain of limestone mountains was running parallel with the road. At the foot of a hill belonging to that chain, Señor de Gaba pointed out a place to me where some years ago a remarkable discovery had been made. In the year 1838 a Mexican, Don Juan Flores, perceived there the hidden entrance to a cave. He entered, but seeing inside a council of Indian warriors sitting together in the deepest silence, he retreated and told it to his companions, who, well prepared, entered the cave together, and discovered about 1000 (?) well-preserved Indian corpses, squatted together on the ground with their hands folded below the knees. * * * This is the very insufficient account of the mysterious burying-place. The Mexicans suppose that it belonged to the Lipans, an old Indian tribe, which from time immemorial has roved and is roving over the Bolson de Mapini."

About twenty years ago, many caves in this region were worked for salt-petre and at that time many bundles with their contents were used for fuel by the miners. From this cause Dr. Palmer did not find in the cave near San Lorenzo a single bundle undisturbed, but only bits of wrappings, sandals and a few other objects, in addition to some of the scattered human bones. Fifteen skulls, several fragments of skulls, a number of odd limb bones, with a few pieces of pelves and scapulæ were secured. Some of these bones were blackened and charred in spots, and evidently had been thrown aside by the salt-petre miners.

The third cave, twenty-six leagues east of Parras, near Acateta, is 93 ft. long, 5 to 8½ ft. wide, and but 4 ft. high in the highest part. The floor was covered with a layer of the excrement of rodents several inches deep, from beneath which six crania, a sacrum and several vertebræ were removed.

The fourth and last cave explored is situated fourteen leagues northeast of Monclova. Its length is 150 ft., width 15 to 20 ft., and height 12 to 20 ft. It was visited first in search of hidden Spanish treasure, afterwards by collectors of Indian trinkets, and still later its bundles served to feed the fires of the salt-petre workers. At the time of Dr. Palmer's visit, there remained only

[2] Dr. Wislizenus was marching from San Sebastian to San Lorenzo.

traces of the bundles, in bits of cloth, matting, etc., with one cranium and some fragments of crania. The left half of the skull is charred probably by the fires of the salt-petre miners.

SKELETONS.

The bones from the various caves are well preserved. They indicate a muscular and strongly built people. None of the bones of the skeleton show marks of disease or injury, except the lower third of a right fibula from a bundle in Coyote Cave. This fragment is much thickened by some inflammatory process.

Four atlases only were found, belonging to the four skeletons from Coyote Cave. Each has a foramen for the vertebral artery, formed by a spiculum of bone carried over the usual groove to the posterior border of the arch. Upon two of the vertebræ this bony bridge is very broad, is perforated near its origin, and sends off a stay to the transverse process.

Forty-six per cent, or six, of the thirteen humeri are perforated through the olecranon fossa. The perforations vary in shape and size with the different skeletons and with the two sides of the same skeleton. In one instance the bone of one side is perforated, and that of the opposite side is entire.

The linea aspera of the femur is carinated.

The sixteen tibiæ are all more or less flattened as compared with the tibiæ of Europeans. The antero-posterior and breadth diameters of the bone being taken at the level of the nutrient foramen, according to Wyman's method, the breadth *index* averages for the sixteen tibiæ 626; the maximum being 697, that of both tibiæ of skeleton No. 22846, and the minimum 513, that of a left tibia No. 22665. Beside the skeleton No. 22846, there are two others having both tibiæ, and in each instance the flatter tibia is upon the left side.

Stature. — Following the usual method of estimating the height from the skeleton by reckoning the length of the femur as .275 of the height; the femora of thirteen skeletons give an average stature of 1662 mm. or 5 ft. 5.3 in. The maximum is 1680 mm. or 5 ft. 6.1 in., calculated on a femur from San Lorenzo Cave. The least stature is 1502 mm. or 4 ft. 9 in., but this may be that of a woman as the femur on which its estimation is based is the most slender of the thirteen. The average is 12 mm. or about $\frac{1}{2}$ in. above Topinard's mean for all races; but eight of the thirteen are below this average.

Lengths and Proportions of the Long Bones.— There are four paired humeri, two odd humeri, a right and a left, and the lower half of a left humerus, from Coyote Cave. From San Lorenzo Cave, there are two humeri, belonging to the left side. The five right humeri average 314 mm. in length, and the seven left humeri have an average length of 316 mm. When the left humerus varies at all in length from the right humerus of the same skeleton it is found to be shorter.

Corresponding to the four paired humeri from Coyote Cave, there are three paired radii and one left radius, and, from the same cave, two odd right radii. From San Lorenzo Cave, there is a left radius. The average length of the five right radii is 250 mm. and of the five left radii 252 mm. As in the humeri, when any variation occurs in the length of paired bones that of the left side is the shorter.

The ratio expressing the relative lengths of radius and humerus has been found to establish a broad distinction between races. Broca found this ratio in negroes to be 794 and in Europeans 739. The four skeletons from Coyote Cave give a humero-radial index of 796, by which they are widely separated from the European and more nearly resemble the negro-type.

Three skeletons from Coyote Cave are represented by their femora, two by pairs and one by that of the right side only. From the same cave there are also three single right femora and an odd left one. From the cave near San Lorenzo we have an odd right femur and five left femora. The average length of the bone of the right side is 447 mm.; of that of the left side 445 mm. Upon one skeleton, the femora of opposite sides of the body are of the same length, upon the other skeleton, the left femur is the shorter.

Corresponding to the femora from Coyote Cave, there are a right tibia and two paired tibiæ, and in addition an odd right and three odd left tibiæ. There are from the cave near San Lorenzo five odd tibiæ, four belonging to the right and one to the left side. The length of the nine right tibiæ averages 381 mm. and of the seven left tibiæ 382 mm. The left tibia is longer than the right by 1 mm. upon one skeleton, but is shorter than the right tibia upon the other two skeletons.

The femoro-tibial index averages 867 upon three skeletons, furnished with both bones for comparison.

The intermembral index, or the expression of the proportion existing between the superior and inferior extremities, which is found by comparing the added lengths of the humerus and radius with those of the femur and tibia, is 678 in the three skeletons from Coyote Cave. Broca states this to be 683 in the negro and 697 in the European.

Unfortunately, the results of observations on the bones from these caves do not carry as much weight as if they were based upon a larger number of skeletons. So far as they go, they serve to establish the following facts. First, when any variation is seen in the length of corresponding bones from the same skeleton, it is the bone of the right side of the body which is the longer. Second, the clavicle in relation to the humerus is longer than among Europeans. Third, the superior extremity relatively to the inferior is shorter than among Europeans. Fourth, this shortness of the superior extremity depends upon the shortness of the humerus, as the forearm as compared to the arm is longer than among Europeans. Fifth, the tibia is relatively to the femur longer than among Europeans, which must be taken into consideration as influencing the relative length of the two extremities. By all these characters the skeletons from Coahuila are nearer to the negro than to the European type.

CRANIA.

Twenty-five crania, most of them perfect, including three of children, were found suitable for measurement. Of these, fourteen, one that of a child, were collected in the cave near San Lorenzo; six, two belonging to children, came from the cave near Acateta; four, each with its accompanying skeleton, were found in bundles in Coyote Cave; and a single cranium was picked up in the cave near Monclova.

In the determination of sex and age, the methods of Broca and Topinard have been followed. The crania of adult individuals are thus classed as fifteen male and seven female. The men were from twenty to seventy years, the women from twenty-two to forty-five years. The average age of the men was forty-five, of the women thirty-six. The three children were respectively, ten, eleven, and thirteen years.

Dolichocephali.— Fifty-six per cent, or fourteen skulls, are long. Of these, three of men and two of women are from the San

Lorenzo Cave, four of men and two of children are from the Acateta Cave, two of men are from the Coyote Cave and one woman's cranium is from the Monclova Cave. That each of these disassociated caves contributes a large per cent of the crania found in it to the dolichocephalic class authorizes the inference that a long-skulled people were formerly widely distributed over Coahuila.

The skulls are small; the men's having an average capacity of 1361 cc. and the women's 1100 cc. Four of the nine men's and all the women's and children's crania are microcephalic.

None are flattened posteriorly or otherwise deformed so as to depreciate the value of measurements taken upon them.

In profile, the long skull presents to view an oval, with the larger end behind. Commonly, it rests in ordinary equilibrium, but two rest in posterior condyloid, and one in posterior mastoid equilibrium. From the ophryon over the vertex to a point just above the obelion, the outline is defined by the carinated ridge. At the ophryon, this ridge is narrow, but gradually widens as it approaches the bregma. Here, again, it is narrow, but increases in width until, just above the obelion, it bifurcates, and either encloses a small slightly flattened area, the region of the obelion, or runs down divergingly to the lambdoid suture, or disappears upon the parietal bone. Over the frontal bone the outline is retreating, and for two-fifths of the sagittal length it extends horizontally or rises a little on skulls with a prominent carinated ridge. Just before its bifurcation, the ridge diminishes in strength, and this with the slight flattening over the obelion gives a sloping outline to the posterior two-fifths of the parietals. Below the lambda is seen the gently swelling occipital scale. Posteriorly, the diameter of maximum length ends midway between the lambda and inion on two, a little below midway in most, and over the inion in two, crania. The vertical plane of the inion is but little posterior to that of the lambda; its horizontal plane but slightly raised above the alveolar plane.

The mastoid process is noticeably full and broad. Its long, rough posterior border is directed obliquely downwards and forwards. A line continuing this border upwards and backwards would pass along the line of the posterior portion of the temporal ridge.

The temporal ridge embraces in its sweep the greater part of the side of the head. Passing close in front of the asterion and along the lambdoid suture from one-third to half-way to the lambda, it

then curves forwards over or above the parietal eminences, reaching its highest point about 2 cm. back of the coronal suture, where it is separated from the ridge of the opposite side but 88 mm. in the male and 80 mm. in the female skulls.

Viewing the skulls from either behind or in front, one is struck with their pentagonal form. The longest side of the pentagon is the base of the skull, and next in length are the nearly flat sides of the head, which turn at the parietal eminences to form the slanting roof. The sharpness of the superior angle depends on the strength of the carinated ridge. Although in three skulls the diameter of maximum breadth ends at the centre of the parietal eminences, and in two over the squamous suture, yet in the majority it ends at a point a little below midway between the centre of the eminences and the squamous suture. It falls uniformly back of the auriculo-bregmatic line, a distance averaging 23 mm. on the male, 17 mm. on the female, and 25 mm. on the children's crania.

Both vertex and base are oval. The narrower end is anterior, except in Nos. 22648 and 22693. These two are noticeable from other characters than their narrow bulging occiput. They are microcephali: long, low and very narrow, with the same breadth index of 674. Their diameter of maximum breadth ends at the squamous suture. Their exaggerated length is not due to synostosis; for, except the basilar, the sutures are all open, internally as well as externally. The lambdoid suture of 22648 is just beginning to close on the left side near the lambda. No. 22693 is from the cave near Monclova, and from the same cave there are two calvaria, wanting the frontal bone with open sutures which are of the same long and narrow form with a full occiput. No. 22648 if viewed by itself might be considered abnormal, but No. 22693 and its associated calvaria from another cave present the same shape so slightly modified as to link it with the rest of the group, making it evident that both skulls must be taken as only individual variations of the long type.

The various surfaces, spines and processes for muscular attachment upon the base of the skull are well developed. The pneumatic spine of Hyrtl is seen upon two.

The position of the foramen magnum was reached by means of projection measurements on the mature skulls. Two of the skulls of women, unfortunately, are unfitted for this measurement

by the broken condition of the alveolar process. The average centre of the base of the skulls of men is 3 mm. in front of the basion, back of which the foramen magnum stretches for 35 mm., bringing its centre 20 mm. back of the centre of the base of the skull. In one woman's skull, it is 16 mm. back of the centre of the base. There is no constant relation between the capacity of the skull and the size of the foramen magnum, although the largest skull has the largest, and the smallest skull the smallest foramen magnum.

The three most extensive sutures, the coronal, sagittal and lambdoid, increase in complexity going backwards, the coronal corresponding to 2 and 3, the sagittal to 3 and 4 and the lambdoid to 3, 4 and 5 of Broca's scale. These sutures are open in five male and three female skulls. The metopic suture is closed, yet in all but one male skull, there is seen over the glabella a criss-crossing of bony ridges, the serrations of the closed and partially obliterated suture. The frontal, in no instance, articulates with the temporal. The shortest spheno-parietal suture measures but 7 mm. It is on the right side of No. 22646. The internasal suture is closed in No. 22644, and has begun to close in the crania of two adults and a child, all three from Acateta Cave. The intermaxillary suture is seen only on the palatine surfaces of No. 22823 and of the children's skulls.

Eight of the fourteen have no Wormian bones. Six, four of men, one woman's and a child's, have Wormian bones, all of the size numbered 3 in Broca's scale. The woman's skull, No. 22693, has a long bone crossing the right half of the lambdoid suture. The child's skull, No. 22699, has a similarly shaped bone in the same place. No. 22698 has a square bone in the right masto-occipital suture, No. 22701 a long bone, crossing the left masto-parietal, No. 22846 has a long bone crossing each masto-occipital, and No. 22823, three long ones crossing the lambdoid suture, and a triquetral over the lambda. Occasionally very minute supernumerary bones are seen in the coronal suture near the stephanion or in the more intricate of the lambdoid sutures.

The face is long; the diameter of length for the nine male skulls averages 98 mm. This gives, notwithstanding the considerable breadth of the face, the large facial index of 731. The only female skull that could be measured has a facial length of 91 mm. and a facial index of 728. By average length of face and facial index, they resemble the thirteen Greenland Esquimaux skulls, whose

mean measurements are given in the Crania Ethnica. The bizygomatic diameter, which gives the maximum breadth of the face, was taken upon seven male and two female skulls. In four of the nine it exceeds the maximum breadth of the head, and in the remaining five the excess in favor of maximum breadth of the head is very slight. A breadth of face exceeding the breadth of the head is characteristic of most skulls of Greenland Esquimaux, according to the measurements recorded by several authorities.

The forehead is remarkably narrow. The glabella commonly projects beyond the ophryon, yet it is not usually prominent. When the superciliary ridges are heavy, the glabella is no more prominent than they, and may be sunk between them. The apparent prominence of the glabella is liable to be exaggerated by a supranasal depression. Such a depression appears upon two skulls, but the others have the root of the nose either on the vertical plane of the glabella or anterior to it.

The interorbital space is narrow and the naso-frontal suture extends higher upon it than the maxillo-frontal, so that these two sutures do not make an even curve or straight line across the space.

The nasal bones are long and of medium width. They are set together at an angle, varying in openness, from a nearly right angle in No. 22846 to a most obtuse in No. 22648. The breadth of the nasal aperture shows considerable individual variation. Five male skulls are leptorhine, three skulls, two male and one female, are mesorhine, and three, two male and one female, are platyrhine. The form of the aperture varies between oval and heart-shaped. One skull has a sharp single lower border to the nasal aperture. Four have this lower border blunt. In six the lines from spine and side are not continuous. In three of these six they are separated by a distinct pit. The nasal spine is short and usually blunt.

Most have straight brows and square orbits. None are microseme. Ten are megaseme and four are mesoseme.

The palate is either hypsiloid or slightly elliptical in form. None are prognathic. Five males and the two children are orthognathic, four males and one female are mesognathic. Unfortunately, two female skulls have broken alveoli and cannot be measured for gnathism. There is no dental prognathism, for the

incisors in those jaws in which they remain are set vertically in the sockets.

Exostoses are rare. Three male skulls have each a thin, slender oval tumor on the middle of the posterior wall of each meatus, the long diameter extending into the opening. One has, in addition, a small oval exostosis on the lower margin of the nasal aperture of the right side. A female skull from the San Lorenzo Cave has a small conical hyperostosis on the superior maxillary midway between the lower margin of the orbit and the first molar.

Two skulls bear marks of superficial wounds; No. 22656 in a small pit in the frontal bone probably at the base of some scalp wound, and No. 22645 in a small flattened spot with three slight cuts above it on the right parietal near the centre of the bone.

Mesaticephali.— Nine crania belong to this class. Seven, six of adults and one of a child, are from the San Lorenzo Cave. Two adult crania are from the Coyote Cave. But it will be remembered that eleven long skulls were got in the San Lorenzo Cave, and two long skulls in Coyote Cave, so that wherever mesaticephali are found dolichocephali are also found in as great or greater number, while one cave, that near Acateta, is represented only by six dolichocephali. As, therefore, the long skull seems to be the prevalent cave type, only variations from it in the other classes are given. The mesaticephali are of greater capacity: four males are megacephalic, two female skulls are mesocephalic, and one male and one child's are microcephalic.

No. 22658 is slightly flattened posteriorly on the right side, so as to push forward a little the parietal eminence of that side. The measurements of the skull are not affected by this inconsiderable distortion. The other mesaticephali are of normal shape. There is less slope to the posterior portion of the parietals than in the long skulls, the outline being more rounded in that region. The long diameter falls upon or above the middle of the occipital scale in six of the nine and in none falls so low as the inion. This is higher than in the long skulls. The inion is also raised higher above the alveolar plane than in the long skulls, and the whole occiput is higher.

The temporal ridge passes above the parietal eminences, although it does not, particularly in the female skulls, enclose so

much of the side of the head as in the long skulls. The mastoid processes are a little shorter, narrower and less full than in the long skulls.

The maximum breadth diameter falls farther back and higher than in the long skulls, but not so high or far back as the parietal eminences.

Like the long skulls, both vertex and base are oval, narrower anteriorly. The lines, spines and processes for muscular attachment, though well developed are not so strong, as a rule, as in the long skulls. No. 22827 has the pneumatic spine of Hyrtl.

The centre of the foramen magnum is 17 mm. back of the centre in the men's skulls. This is 3 mm. anterior to the same point in the male long skulls. The size of the foramen magnum does not bear a constant relation to the size of the skull.

The sutures are of the same general character as in the dolichocephali. The shortest spheno-parietal suture is that of No. 22651, which measures 7 mm. The internasal is open in all. Traces of the intermaxillary appear on the palatine surface of three, one, a child's, No. 22654, the other two, those of young adult females from San Lorenzo Cave.

None have Wormian bones of more than medium size. No. 22649 has a square Wormian in the left masto-occipital; No. 22827 has a long bone in the left masto-parietal and an epipteric on the right side. No. 22651 has a long bone lying across the left half of the lambdoid suture near the lambda. Several have minute Wormian bones in the more intricate parts of the long sutures.

The face is a little shorter and the facial index less than that of the dolichocephali. All have the bizygomatic less than the maximum breadth diameter, differing in this respect from some of the long skulls. The forehead is narrow, low and retreating. Only two have heavy superciliary ridges. None have a supranasal depression, or a prominent glabella. The nasal bones are as long and broader, and do not form as open an angle by their junction as in four of the long skulls.

Four are leptorhine, two platyrhine. The nasal aperture is oval or heart-shaped. The lower border is formed by a single sharp line. On No. 22827 the lines from the side and spine are not blended, but separated by a deep pit. The nasal bones of No. 22658 appear to have suffered an arrest of development.

The dwarfed bones are united into a bit of bone longest in the median line, where it measures 10 mm., while the length on the side is but 7 mm. Where it joins the frontal, its width is 4 mm., at its point of greatest width it measures 5 mm. The tip is only 3 mm. wide and is curved up like a hook.[3] The lower border of the nasal aperture is sloping. This skull is prognathic. The rest of the adult skulls are divided equally between orthognathic and mesognathic. The child's skull is orthognathic. The palate is elliptical or hyperbolic. All are megaseme but one, and have straight brows and square orbits. One is mesoseme.

Three male skulls have one or more exostoses in each meatus. No. 22827 has long flattened tumors passing into each meatus on the anterior inferior and posterior inferior walls, the larger tumor being on the posterior inferior wall. No. 22791 has a long crest-like tumor with its long diameter passing into the opening situated on the posterior inferior wall of each meatus, and a thickening of the anterior walls. No. 22649 has a rounded oval tumor on the middle of the posterior wall, and a thickening of the anterior wall of the right meatus. The left meatus has upon the middle of the posterior wall a large globular tumor, which sends a slender offshoot into the canal.

Two of the male skulls bear traces of wounds. Upon the middle of the right parietal above the eminence of No. 22657 is seen a pit about a centimetre in depth. At this point the endocranium is smooth and uninjured, saved probably by the unusual thickness of the bone. Although a small skull and deprived of most of its face, yet so thick are its walls its weight is 30½ oz. The next heaviest skull is No. 22646, which has a perfect face and yet weighs but 27 oz.

No. 22791 has sustained a remarkable injury, inflicted by a stone arrowpoint which is retained in the superior meatus of the nose. This was discovered by Dr. W. F. Whitney and described by him before the Boston Society of Natural History. The following report of his remarks is taken from the Proceedings of the Society for 1881. "An arrow had entered through the inner side of the left orbit close to the lachrymal duct, pierced the septum, and merely broken through into the right orbit by a small

[3] A similar arrest of development of the nasal bones is seen in No. 18599, from a Stone Grave of the Cumberland Valley, Tennessee.

portion of its edge. It was thus lodged close beneath the ethmoid bone and imprisoned there by the partial closure of the entrance through a formation of new bone, which showed also that the man had been shot weeks or even months before his death." Besides this interesting lesion, a blow upon the forehead just above the left brow dented the outer and fractured the inner table. This fracture was perfectly repaired and over the seat of it is a deposit of new bone in the shape of a flat button, measuring a centimetre across.

Brachycephali.—Two broad skulls, a male and a female, were found in San Lorenzo Cave. As this cave has long been open and all the crania from it were found disturbed, these two brachycephali may have been later burials. Apparently, brachycephali were exceptional among the people burying in these caves.

Both are natural shapes. They are microcephalic. The female rests in normal, the male in posterior condyloid equilibrium. The long diameter strikes higher, midway between the lambda and inion in the male and above midway in the female, and the vertical projection of the inion also is greater than in the dolichocephali and mesaticephali. The maximum breadth diameter falls more than a centimetre back of the auriculo-bregmatic line, below the centre of the parietal eminences in both, upon the squamous suture in the male and 20 mm. above it in the female skull. The temporal line curves over the parietal eminences. The mastoid processes are shorter and narrower. A rough line crossing the mastoid process above continues the superior occipital line. The centre of the foramen magnum is back of the cranium 19 mm. in the male, and 23 mm. in the female skull.

The sutures are open; the sagittal, coronal and lambdoid of No. 22647 are beginning to close. Their general character is the same as in the dolichocephali and mesaticephali; but in contrast with these, both have large Wormian bones in the lambdoid suture. No. 22653 has two No. 4 of Broca's scale, a little to the right of the lambda. This skull has besides minute bones in the coronal over the stephanion. No. 22647 has in the left half of the lambdoid suture two No. 3 Wormian bones, and two No. 4, and in the right half two No. 3, and one of unusual size, whose long diameter, lying along the suture, measures 54 mm., and its vertical diameter at the widest part measures 36 mm.

The face is a little shorter than the average of the dolicho-

cephali and of the mesaticephali. The male has a facial index of 664, and the female of 719. The bizygomatic is less than the maximum breadth of the head. There is no supranasal depression.

The internasal suture of 22647 is nearly obliterated. Its nasal bones by their junction form an obtuse angle, nearly right. The lower border of its nasal aperture is sharp, with a well-developed nasal spine. No. 22653 has a long, interorbital process with nearly horizontal suture below it. Its nasal bones are set together so as to form a more open angle. The nasal spine is short and blunt, and the lower border of the aperture, sloping.

The brows are nearly straight, and the orbits open and square. The jugal spine is no more prominent than in the preceding varieties. As is usual, this spine differs in size and shape on the two sides. It is wanting on the right side of No. 22653.

No. 22647 has exostoses in the auditory canals; on the right side a general thickening of the walls, and upon the middle of the posterior wall a globular tumor; on the left side the walls are thickened, which with a thick oval tumor on the middle of the posterior wall greatly reduces the calibre of the opening. At the narrowest point the antero-posterior diameter measures but 3 mm. No. 22653 has no exóstoses in the meatus. In the middle of the forehead of No. 22647 is a superficial pit with slight traces of inflammatory action about it. There are no other marks of injury upon either skull.

In summing up the observations upon the twenty-five crania the following tables present the more prominent points:

TABLE I. CAPACITY.

	Megacephalic.			Mesocephalic.			Microcephalic.		
	♂	♀	*y*	♂	♀	*y*	♂	♀	*y*
Dolichocephalic	1			4			4	2	2
Mesaticephalic	4				2		1		1
Brachycephalic							1	1	
Sum	5			4	2		6	3	3
Total	5			6			12		

The cranial characters common to all are the excess in length of the parietal over the length of the frontal and occipital longitudinal arcs, the maximum breadth falling back of the auriculo-bregmatic line, the foramen magnum back of the centre of the base, and the low, narrow forehead and retreating frontal. A carinated ridge is common. All the lines, ridges and processes for muscular attachment are strongly developed, and the temporal line includes a large part of the side of the head. The mesaticephali and brachycephali vary from the more numerous dolichocephali in having the occiput less prominent, and smaller mastoid processes, as well as in the number, size and position of the Wormian bones.

The following table shows the position as to the sutures of the twenty-two Wormian bones found on eleven crania. Their size in the dolichocephali and mesaticephali does not exceed No. 3 of Broca's scale, while in the two broad skulls they are of the sizes 3, 4, 5 of the scale.

TABLE II. WORMIAN BONES.

	Epipteric.			Masto-parietal.			Masto-occipital.			Lambdoid.		
	♂	♀	y	♂	♀	y	♂	♀	y	♂	♀	y
Dolichocephalic.....6				1			3			5	1	1
Mesaticephalic.....3	1			1			1				1	
Brachycephalic.....2										5	2	
Sum.....	1			2			4			10	4	1
Total.....	1			2			4			15		

Seven adult crania, or 36 per cent, have exostoses in the auditory canals. Dr. Blake found 5 per cent of 108 Californian crania, and 18 per cent of 195 mound-builders' crania, with exostoses in the meatus auditorius. There are sixteen exostoses in seven Mexican skulls, found in both canals of each. In the three mesaticephalic and brachycephalic crania the tumors are attended with a

TABLE III. EXOSTOSES.

	Anterior Wall.						Posterior Wall.					
	Flattened.			Rounded.			Flattened.			Rounded.		
	♂	♀	y	♂	♀	y	♂	♀	y	♂	♀	y
Dolichocephalic 3							6					
Mesaticephalic 3	2						2			4		
Brachycephalic 1										2		
Sum	2						8			6		
Total	2						14					

general thickening of the wall of the canal. The face is long, straight and broad. The orbits open and square. The incisors which remain are vertical. The palate is broad and deep. The teeth are sound, but much worn by use.

TABLE IV. GNATHISM.

	Orthognathic.			Mesognathic.			Prognathic.		
	♂	♀	y	♂	♀	y	♂	♀	y
Dolichocephalic	5		2	4	1				
Mesaticephalic	2	1	1	1	1		1		
Brachycephalic				1				1	
Sum	7	1	3	6	2		1	1	
Total	11			8			2		

This table is interesting as it shows a decided tendency to orthognathism, and also because it is seen by it that the three children's crania have already assumed the prevailing form.

The nasal bones are long and broad, broader below than above, and set together at an obtuse angle not far from a right angle. The shape of the nasal aperture as seen by the following table varies greatly. The platyrhines have smaller nasal bones, set at a more open angle.

TABLE V. SHAPE OF NASAL APERTURE.

	Leptorhine.			Mesorhine.			Platyrhine.		
	♂	♀	y	♂	♀	y	♂	♀	y
Dolichocephalic	5			2	1		2	1	2
Mesaticephalic	2	2				1	2		
Brachycephalic				1				1	
Sum	7	2		3	1	1	4	2	2
Total	9			5			8		

From the preceding table it appears that the male skulls tend to be leptorhine, and the female and children's to be mesorhine and platyrhine.

As to the openness of the orbits, there is a great uniformity running through these skulls, as is shown by the following table.

TABLE VII. SHAPE OF THE ORBIT.

	Megaseme.			Mesoseme.			Microseme.		
	♂	♀	y	♂	♀	y	♂	♀	y
Dolichocephalic	6	2	2	3	1				
Mesaticephalic	5	2	1		1				
Brachycephalic	1	1							
Sum	12	5	3	3	2				
Total	20			5					

The lower jaw is noticeably slender. Its actual weight is less than a Californian, Peruvian or mound-builder's jaw of the same period of life. The height at the symphysis is always greater than at the last molar. The chin is prominent. The ramus is narrow and low, its coronoid slightly exceeding the condyloid process in height. The sigmoid notch is shallow. The condyle is small. The angle is everted in eleven of the fourteen jaws.

There is no anomaly of the teeth, except a small supernumerary tooth between the central incisors of each of the two upper

jaws. All the teeth are large and closely set. The incisors are vertical. The first upper molar shows traces of four cusps, but in all adult upper jaws this molar is worn so as to expose the ivory, and in four instances a clean section of the tooth has been made. In one case no enamel is to be seen, the tooth is worn to the neck, and the pulp cavity exposed at three points, a condition Broca designates as exceptional. There has been an abscess at the root of the tooth with considerable alveolar absorption probably to be traced to the irritation of attrition, after the pulp was exposed. The condition of the teeth of all these crania points to the use of hard, coarse food. One hundred and eighty-nine teeth are retained in the sockets of the twenty-three upper jaws. The rest with few exceptions have fallen out post-mortem. Two per cent of the retained teeth are carious, and two per cent of the empty sockets show traces of inflammatory action about the roots of missing teeth.

The lower jaw has also large teeth set close together. Its first molar has commonly five cusps. The wear is downwards and outwards, for all but the incisors which wear horizontally. Some of the teeth of both upper and lower jaws are excavated by use. The fourteen lower jaws have retained one hundred and forty-one teeth, of which but one is carious. None of the empty sockets of the lower jaw point to an unhealthy condition of the missing teeth. The lower jaw of No. 22647 is missing. The teeth of the upper jaw are worn flat, nearly to the neck. Upon the right side the molars have been lost by disease, and the alveoli are absorbed. The loss of these teeth has probably affected the wear of the second bicuspid adjoining, which has the posterior half of the crown worn off obliquely upwards and backwards. Upon the left side is the first molar whose extreme degree of wear has already been described.[4]

[4] The left half of a child's upper jaw No. 22660 from San Lorenzo Cave, and the lower jaw of an adult No. 22701 from Acateta Cave were examined as to their dentition by Dr. W. C. Barrett of Buffalo, N. Y. No. 22690 belonged to a child seven years old. Where the bone is broken away, the first permanent bicuspid may be seen lying transversely with its root directly in the path of the permanent canine. This tooth Dr. Barrett states "might possibly have righted itself." He also remarks upon "the extraordinary wear of the deciduous teeth," which "gives considerable insight into the food, habits and early development of that people."

The two last molars of the left side of No. 22701 had each a large cavity in the grinding surface. When the jaw was found these cavities were filled with what "proves to be an organic substance." Dr. Barrett thinks it may be the remains of food and finds "certain internal evidences that it was not designedly placed there as a stopping."

CONCLUSIONS.

The foregoing observations indicate that the people who buried their dead in the caves of Coahuila were a strong-built, muscular race, of medium height. By the proportions of their skeletons they resemble the negro more nearly than the European type. When these burials were made, a natural long skull of small capacity was the most common form. This small, long head had a long, large face, with broad cheek bones, straight brows, square open orbits, a prominent straight nose, and wide but not projecting mouth, furnished with comparatively sound teeth, well worn by mastication. The black straight hair was worn in queues.

To what tribe they belonged or what was the date of their burial is unknown. Wislizenus, in connection with the Burial Cave near San Lorenzo which he describes, alludes to a conjecture that they were ancient Lipans. This is the only attempt at a solution of the problem.

The only crania from this region, whose measurements I have seen, are three Lipans, nine Comanches and thirty Apaches, given in the Check List of the Army Medical Museum edited by Dr. George A. Otis. One of three Lipans, one of the nine Comanches, and three of the thirty Apaches are dolichocephalic. This is hardly such a proportion as to ally them to the long-headed Cave people.

A larger collection of crania and bones from northern Mexico is needed to throw more light upon this question. By the aid of more material and further research it may become possible to trace the origin, wanderings and connections of this medium-sized, long headed people who buried their dead in the Caves of Coahuila.

The following tables give the particular measurements upon which this sketch is based.[5]

[5] The capacity is taken with mustard seed and measured by Busk's craniometer. All the diameters are taken with Flower's craniometer. The circumferences and arcs are taken with the tape measure. The projection measurements are taken by means of Broca's projection board.

All the measurements are taken and indices calculated according to Broca, except the following: those of the palate after Flower, the naso-malar angle after Flower. The nasal bones are measured with calipers after De Quatrefages. The bimastoid is the maximum diameter through the mastoid processes, the mastoid length is the vertical diameter from the tip of the process to a point vertically above it on the posterior root of the zygoma.

TABLE I. DOLICHOCEPHALI.

Museum No.	Sex.	Locality.	Capacity.	Longitudinal Diameters.			Transverse Diameters.							Height, basi-bregmatic.	Index of Breadth.	Index of Height.
				Glabello-occipital.	Ophryo-occipital Maximum.	Ophryo-inial.	Minimum Frontal.	Stephaniac.	Bi-mastoid.	Bi-auricular.	Temporal.	Maximum.	Asteriac.			
22644	♂	San Lorenzo	1360	184	183	182	88	107	122	119	130	132	117	136	721	743
22645	♂	" " ...	1550	189	187	184	96	117	131	127	133	139	118	138	743	738
22646	♂	" " ...	1375	184	181	181	101	108	132	125	131	135	114	145	746	801
22697	♂	Acateta ...	1325	183	182	174	92	113	125	120	129	133	109	125	731	687
22698	♂	" ...	1275	181	180	174	91	—	131	121	128	132	114	130	733	722
22701	♂	" ...	1400	188	185	184	86	111	129	121	130	138	—	131	746	708
22702	♂	" ...	1350	177	178	176	94	110	122	118	128	132	101	129	742	725
22823	♂	Coyote ...	1400	184	181	176	96	113	125	120	122	131	108	140	724	773
22846	♂	" ...	1275	179	179	175	88	105	123	116	126	130	102	130	734	734
Average...	..	.....	1361	183	182	178	92	111	127	121	129	134	110	134	736	736
Maximum..	..	.....	1550	189	187	184	101	117	132	127	133	139	118	145	746	801
Minimum..	..	.....	1275	177	178	174	86	105	122	116	122	130	101	125	721	687
Range.....	..	.....	275	12	9	10	15	12	10	11	11	9	17	20	25	114
22648	♀	San Lorenzo	1000	181	178	167	80	90	118	116	118	120	96	119	674	669
22656	♀	" " ...	1200	181	180	180	85	102	120	118	128	133	104	124	733	689
22693	♀	Monclova ...	....	183	181	171	90	103		116	120	122		127	674	702
Average...	..	.....	1100	182	180	173	85	98	119	117	122	125	100	123	694	683
Maximum..	..	.....	1200	183	181	180	90	103	120	118	128	133	104	127	733	702
Minimum..	..	.....	1000	181	178	167	80	90	118	116	118	120	96	119	674	669
Range.....	..	.....	200	2	3	13	10	13	2	2	10	13	8	8	59	33
22699	y	Acateta ...	1275	174	175	—	87	104	—	111	120	128	97	127	731	726
22700	y	" ...	1125	167	168	—	84	98	—	108	115	122	98	121	726	720

TABLE I. DOLICHOCEPHALI.—*Continued.*

Museum No.	Projection of Head.			Horizontal Circumference.	Horizontal Arcs.		Vertical Transverse Circumference.	Transverse Arcs.				Longitudinal Arcs.			Foramen Magnum.	
	Anterior.	Posterior.	Total.		Pre-auricular.	Post-auricular.		Frontal.	Bregmatic.	Parietal.	Occipital.	Frontal.	Parietal.	Occipital.	Length.	Width.
22644	98	104	202	509	242	267	421	267	284	305	259	125	118	125	36	28
22645	103	106	209	526	233	293	441	277	309	318	285	123	125	129	40	37
22646	102	93	195	511	240	271	452	287	301	315	263	128	133	110	34	34
22697	96	101	197	509	245	264	427	281	287	295	263	121	123	116	35	29
22698	107	91	198	502	229	273	420	271	281	302	267	121	127	112	35	30
22701	102	105	207	515	240	275	430	289	297	317	268	131	128	124	34	31
22702	96	88	184	502	236	266	427	286	293	305	250	123	127	112	33	31
22823	100	99	199	502	235	267	427	279	287	305	261	122	122	122	36	30
22846	102	97	199	498	236	262	414	279	283	293	256	120	122	112	35	30
Average.....	101	98	199	508	237	271	429	280	291	306	264	124	125	118	35	31
Maximum...	107	106	209	526	245	293	452	289	309	318	285	131	133	129	40	37
Minimum....	96	88	184	498	229	262	414	267	281	293	250	120	118	110	33	28
Range.....	11	18	25	28	16	31	38	22	28	25	35	11	15	19	7	9
22648	—	—	—	477	225	252	390	245	248	270	245	114	126	115	32	26
22656	97	97	194	493	225	268	408	265	280	304	258	125	129	118	32	27
22693	—	—	—	—	224	—	405	263	273	—	—	110	132	114	37	34
Average.....	—	—	—	485	225	260	401	258	267	287	252	116	129	116	34	29
Maximum...	—	—	—	493	225	268	408	265	280	304	258	125	132	118	37	34
Minimum....	—	—	—	477	224	252	390	245	248	270	245	110	126	114	32	26
Range.....	—	—	—	16	1	16	18	20	32	34	13	15	6	4	5	8
22699	—	—	—	477	222	—	414	267	281	301	247	119	132	110	33	30
22700	—	—	—	471	217	—	391	249	265	290	242	115	125	117	32	26

TABLE I. DOLICHOCEPHALI.—*Continued.*

Museum No.	Angles.				Transverse Diameters of Face.					Height of Face.	Height of Malar.	Height of Alveolus.	Auriculo-orbital Length.	Of Alveolus.		
	Facial, Ophryo-spinal.	Of Daubenton.	Basilar.	Naso-malar.	Bizygomatic.	Bijugal.	Intermalar Superior.	Intermalar Inferior.	Interorbital.					Basi-nasal Length.	Basi-alveolar Length.	Gnathic Index.
22644	71°	12°	23°	131°	126	112	56	99	24	100	26	21	67	103	97	942
22645	70°	5°	18°	137°	140	125	55	96	22	100	30	25	65	103	103	1000
22646	74°	10°	21°	126°	140	123	57	100	27	99	33	19	70	111	101	910
22697	72°	1°	13°	127°	131	118	51	98	22	96	32	19	70	101	97	960
22698	73°	4°	12°	—	—	—	—	—	24	95	29	22	65	104	107	1029
22701	68°	0°	12°	135°	135	117	52	100	23	99	30	22	71	100	102	1020
22702	73°	—	10°	130°	137	112	—	—	22	—	23	18	64	101	96	950
22823	73°	9°	20°	134°	127	112	53	97	24	91	26	20	67	105	100	952
22846	67°	10°	21°	139°	128	114	59	94	23	100	30	21	69	102	100	980
Average.....	71°	5°	17°	132°	134	117	55	98	23	98	29	21	68	103	100	971
Maximum...	74°	—	23°	139°	140	125	59	100	27	100	33	25	71	111	107	—
Minimum....	67°	—	10°	126°	126	112	51	94	22	91	23	18	64	100	96	—
Range.....	7°	—	13°	13°	14	13	8	6	5	9	10	7	7	11	11	—
22648	—	—	—	142°	131	114	—	—	23	—	26	—	67	—	—	—
22656	68°	3°	13°	135°	125	108	56	95	23	91	25	—	69	97	97	1000
22693	67°	10°	19°	139°	—	—	—	—	23	—	24	—	—	—	—	—
Average.....	68°	7°	16°	139°	128	111	—	—	23	—	25	—	68	—	—	—
Maximum...	68°	10°	19°	143°	131	114	—	—	—	—	26	—	69	—	—	—
Minimum....	67°	3°	13°	135°	125	108	—	—	—	—	24	—	67	—	—	—
Range.....	1°	7°	6°	8°	6	6	—	—	—	—	2	—	2	—	—	—
22699	—	—	—	—	—	95	—	—	21	—	19	15	62	91	83	912
22700	—	—	—	—	—	95	—	—	20	—	21	13	61	89	85	955

TABLE I. DOLICHOCEPHALI.—*Continued.*

Museum No.	Of Palate.			Of Orbit.			Of Nasal aperture.			Nasal Bones.					Mastoid Length.
	Length.	Width.	Index of width.	Width.	Height.	Index of Height.	Height.	Width.	Index of width.	Length-median.	Length-lateral.	Width-at root.	Width-minimum.	Width at free edge.	
22644	55	66	120	38	35	921	57	29	509	29	29	15	10	22	34
22645	54	66	122	40	37	925	55	30	545	26	25	11	10	21	40
22646	56	70	125	41	35	854	57	27	474	26	29	15	12	20	38
22797	55	64	116	38	35	921	56	26	464	—	24	11	9	16	43
22698	54	63	117	38	33	868	51	28	549	—	26	14	13	22	37
22701	56	61	109	38	36	947	55	23	418	—	29	12	9	18	38
22702	—	—	—	41	36	878	53	25	472	25	27	11	10	18	36
22823	55	65	118	38	37	974	50	26	520	—	26	13	10	—	37
22846	56	65	116	37	34	919	54	24	444	24	31	11	7	16	34
Average...	55	65	118	39	35	897	54	26	481	26	27	12	10	19	37
Maximum..	56	70	125	41	37	—	57	30	—	29	31	15	13	22	43
Minimum..	54	61	109	37	33	—	50	23	—	24	24	11	7	16	34
Range.....	2	9	16	4	4	—	7	7	—	5	7	4	6	6	9
22648	—	—	—	37	35	946	48	25	521	—	—	12	9	—	33
22656	52	62	119	37	34	919	52	28	535	—	—	13	8	—	35
22693	—	—	—	39	34	872	—	—	—	—	—	13	—	—	39
Average...	—	—	—	38	34	895	50	27	530	—	—	13	9	—	36
Maximum..	—	—	—	39	35	946	52	28	535	—	—	13	9	—	39
Minimum..	—	—	—	37	34	872	48	27	531	—	—	12	8	—	33
Range.....	—	—	—	2	1	74	4	1	4	—	—	1	1	—	6
22699	40	63	158	34	34	1000	43	23	535	—	—	—	—	—	—
22700	42	56	133	33	32	970	40	23	575	—	—	—	—	—	—

TABLE II. MESATICEPHALI.

Museum No.	Sex.	Locality.	Capacity.	Longitudinal Diameters.			Transverse Diameters.							Height, basi-bregmatic.	Index of Breadth.	Index of Height.
				Glabello-occipital.	Ophryo-occipital Maximum.	Ophryo-inial.	Minimum frontal.	Stephaniac.	Bi-mastoid.	Bi-auricular.	Temporal.	Maximum.	Asteriac.			
22649	♂	San Lorenzo	1600	187	184	179	97	120	118	117	132	138	120	139	750	755
22657	♂	" " ...	1300	183	178	175	92	108	123	116	128	134	104	142	753	758
22658	♂	" " ...	1475	185	184	174	93	116	130	128	133	139	110	135	755	734
22791	♂	Coyote ...	1500	183	181	173	92	116	129	124	134	138	109	136	762	751
22827	♂	" ...	1450	184	180	178	92	106	125	123	—	137	106	137	756	761
Average...	.	.....	1465	184	181	176	93	113	125	122	132	137	110	138	757	762
Maximum..	..	.....	1600	187	184	179	97	120	130	128	134	139	120	142	—	—
Minimum..	..	.....	1300	183	178	173	92	106	118	116	128	134	104	135	—	—
Range.....	..	.....	300	4	6	6	5	14	12	12	6	5	16	7	—	—
22655	♀	San Lorenzo	—	177	176	170	93	—	125	120	126	133	100	129	756	733
22650	♀	" " ...	1425	182	180	174	92	115	122	125	135	139	108	132	772	733
22651	♀	" " ...	1425	174	174	172	91	115	121	119	127	136	109	134	782	770
Average...	..	.....	1425	178	177	172	92	115	123	121	129	136	106	132	768	746
Maximum..	..	.....	—	182	180	174	93	—	125	125	135	139	109	134	—	—
Minimum..	..	.....	—	174	174	170	91	—	121	119	126	133	100	129	—	—
Range.....	..	.....	—	8	6	4	2	—	4	6	9	6	9	5	—	—
22654	y	San Lorenzo	1225	163	163	—	90	105	—	106	122	127	100	122	779	748

TABLE III. BRACHYCEPHALI.

22647	♂	San Lorenzo	1325	177	173	169	92	105	133	136	140	145	113	135	838	780
22 53	♀	San Lorenzo	1200	165	164	161	87	111	130	116	126	132	96	126	805	768

TABLE II. MESATICEPHALI.—*Continued.*

Museum No.	Projection of Head.			Horizontal circumference.	Horizontal Arcs.		Vertical transverse circumference.	Transverse Arcs.				Longitudinal Arcs.			Foramen Magnum.	
	Anterior.	Posterior.	Total.		Pre-auricular.	Post-auricular.		Frontal.	Bregmatic.	Parietal.	Occipital.	Frontal.	Parietal.	Occipital.	Length.	Width.
22649	102	114	216	519	238	281	458	297	314	335	275	129	133	—	—	30
22657	—	—	—	505	238	267	434	287	300	314	250	134	128	111	34	29
22658	107	100	207	511	238	273	443	263	302	317	270	132	125	123	37	37
22791	100	101	201	514	240	274	442	282	297	315	270	125	122	120	41	35
22827	94	103	197	508	236	272	430	283	295	313	265	130	133	115	38	31
Average.....	101	105	205	511	238	273	441	282	302	319	236	130	128	117	38	32
Maximum...	107	114	216	519	240	281	458	297	314	335	275	134	133	123	41	37
Minimum....	94	100	197	505	236	267	430	263	295	313	250	125	122	111	34	29
Range.....	13	14	19	14	4	14	28	34	19	22	25	9	11	12	7	8
22655	—	—	—	497	232	265	426	276	287	306	263	112	122	115	35	31
22650	97	99	196	503	237	266	436	286	298	310	258	128	112	118	40	32
22651	97	96	193	494	220	274	422	274	289	316	266	123	132	112	35	31
Average.....	97	98	195	498	230	268	428	279	291	311	262	121	122	115	37	31
Maximum...	—	99	196	503	237	274	436	286	298	316	266	128	132	118	40	32
Minimum....	—	96	193	494	220	265	422	274	287	306	258	112	112	112	35	31
Range.....	—	3	3	9	17	9	14	12	11	10	8	16	20	16	5	1
22654	—	—	—	461	128	—	396	248	276	305	250	110	116	106	39	30

TABLE III. BRACHYCEPHALI.—*Continued.*

22647	99	95	194	504	231	273	450	278	297	310	258	121	126	117	35	32
22653	100	86	186	473	218	255	411	268	278	296	250	116	123	102	33	30

TABLE II. MESATICEPHALI.—*Continued.*

Museum No.	Angles.				Transverse Diameters of Face.					Height of Face.	Height of Malar.	Height of Alveolus.	Auriculo-orbital Length.	Of Alveolus.		
	Facial, Ophryo-spinal.	Of Daubenton.	Basilar.	Naso-malar.	Bizygomatic.	Bijugal.	Intermalar Superior.	Intermalar Inferior.	Interorbital.					Basi-nasal Length.	Basi-alveolar Length.	Gnathic Index.
22649	66°	—	—	131°	132	117	56	93	21	101	26	21	68	102	101	990
22657	—	—	24°	—	—	—	—	—	24	—	27	—	—	104	—	—
22658	68°	5°	14°	—	—	—	—	—	24	89	24	20	68	99	107	1081
22791	68°	6°	17°	130°	138	119	58	96	22	100	25	20	66	103	97	942
22827	68°	6°	19°	134°	133	119	57	99	25	96	29	20	66	100	93	930
Average.....	68°	6°	19°	132°	134	118	57	96	23	97	26	20	67	102	100	980
Maximum....	68°	6°	24°	134°	138	119	58	99	25	101	29	21	68	104	107	—
Minimum....	66°	5°	14°	130°	132	117	56	93	21	89	24	20	66	99	93	—
Range.....	2	1°	10°	4°	6	2	2	6	4	12	5	1	2	5	14	—
22655	—	—	19°	—	—	—	—	—	—	—	22	—	66	—	—	—
22650	73°	8°	19°	133°	128	111	50	89	22	90	27	17	69	102	96	941
22651	69°	8°	19°	136°	120	107	51	92	21	88	24	18	63	97	96	990
Average.....	71°	8°	19°	135°	124	109	51	91	22	89	24	18	66	100	96	960
Maximum....	73°	—	—	136°	128	111	51	92	22	90	27	18	69	102	—	990
Minimum....	69°	—	—	133°	120	107	50	89	21	88	22	17	63	97	—	941
Range.....	4°	—	—	3°	8	4	1	3	1	2	5	1	6	5	—	49
22654	—	—	—	—	—	—	—	—	21	—	20	14	56	87	85	977

TABLE III. BRACHYCEPHALI.—*Continued.*

22647	70°	8°	21°	135°	143	122	53	99	23	95	28	22	66	101	99	980
22653	68°	5°	15°	136°	121	107	51	90	21	87	23	17	65	95	99	1042

TABLE II. MESATICEPHALI.—*Continued.*

Museum No.	Of Palate.			Of Orbit.			Of Nasal aperture.			Nasal Bones.					Mastoid Length.
	Length.	Width.	Index of width.	Width.	Height.	Index of height.	Height.	Width.	Index of width.	Length, median.	Length, lateral.	Width, at root.	Width, minimum.	Width at free edge.	
22649	54	63	117	41	39	951	55	25	455	28	29	14	9	15	34
22657	—	—	—	40	37	925	—	—	—	—	25	15	12	—	37
22658	59	70	119	39	36	923	44	28	636	10	7	4	3	6	37
22791	55	64	116	39	36	923	56	31	553	26	27	12	10	19	33
22827	54	63	117	38	35	921	55	26	473	—	—	13	11	—	37
Average...	56	65	117	39	37	949	53	28	528	27	27	14	11	13	36
Maximum..	59	70	119	41	39	—	56	31	—	28	29	15	12	19	37
Minimum..	54	63	116	38	35	—	44	25	—	26	25	12	9	6	33
Range.....	5	7	3	3	4	—	12	6	—	2	4	3	3	13	4
22655	—	—	—	42	36	857	—	—	—	—	—	—	—	—	29
22650	51	58	114	37	36	973	52	23	442	24	23	13	9	18	34
22651	53	63	119	37	35	946	49	23	469	25	24	9	8	19	33
Average...	52	61	117	39	36	923	51	23	451	25	24	11	9	19	32
Maximum..	53	63	119	42	36	—	52	—	—	25	24	13	9	19	34
Minimum..	51	58	114	37	35	—	49	—	—	24	23	9	8	18	29
Range.....	2	5	5	5	1	—	3	—	—	1	1	2	1	1	5
22654	44	61	139	36	34	944	42	21	500	—	—	—	—	—	—

TABLE III. BRACHYCEPHALI.—*Continued.*

22647	55	—	—	41	37	902	53	27	509	28	27	13	10	18	37
22653	53	60	113	37	34	919	47	25	532	—	—	9	9	—	28

THE WHITE BUFFALO FESTIVAL OF THE UNCPAPAS.

By Alice C. Fletcher.

A man who kills a white buffalo is considered to have received a blessing from the gods, and an evidence of their favor and recognition. The white buffalo is rare and generally remains near the centre of the herd, which makes it difficult of approach. It is therefore considered as the chief or sacred one of the herd, and it is consequently greatly prized by the Indians.[1] Owing to the scarcity of the white buffalo, an interval of many years usually passes before one is captured.

In order to keep the hides the hunter must have four sons. If the man who kills the white buffalo has four sons and yet is not able himself, or with the assistance of his relatives, to provide the feasts and presents necessary for the full enjoyment of the

[1] The Yankton, Teton, Santee, and Sissiton Indians, consider it a grave responsibility to kill a white buffalo, and it is almost feared, on account of the implied obligation to fulfil the rites pertaining to it. Among the Omahas there is the skin of a white buffalo preserved in a pack kept in a sacred tent under the charge of a specially appointed or consecrated person. This skin was only exposed at the great festival, which was held annually, during the summer, when the tribe was out on the regular hunt. These ceremonies, however, are no longer observed owing to changes incident to the history of the people and their advance toward civilization. White animals are generally regarded as consecrated, and are connected with religious observances, as the White Dog of the Onondagas, White Bear of the Zuni, etc.

Through the kindness of Rev. A. L. Riggs I learn that among the bands of Eastern Sioux living near Fort Sully, D. T., a feast, called "the re-appearance of the White Buffalo Skin," is held for the consecration of a girl on her arriving at puberty. The feast is sacred and costly and not every one can afford it. Those who have once made the feast become privileged guests at every such feast, occupy the feast tent, and are served first. A prominent feature in the feast is the feeding of these privileged persons and the girl in whose honor the feast is given, with choke cherries, as the choicest rarity to be had in the winter. The feast can be held at any time. Bull-berries or as the Dakotas call them, "rabbits'-noses," may be substituted, or finely pounded meat mixed with fat, in case no berries are to be had. In the ceremony, a few of the cherries are taken on a spoon and held over the sacred smoke, then fed to the girl. The spoon is filled anew, incensed as each person is fed. As each one is given the cherries he is addressed thus:

"Wi-ca-'sa ya-ta-pi wo-yu-te de ya-tin kte." ("You will eat this chief's food.")

The eaters are not chiefs, only partake of chiefs' food.

This feast of the White Buffalo differs from that described in the text. The Ogallala feast is also different, judging from the little I have as yet gathered. Further research will, it is to be hoped, serve to elucidate the meaning of these varied feasts, and also reveal their common source.

privileges the ownership of the buffalo entitles him to, or if for any reason he desires to forego the honor, he may barter the hide which is highly valued. One was recently exchanged for three horses and a mule (equal to between one and two hundred dollars). The news of the capture of a white buffalo soon spread beyond the limits of a tribe, and proposals for its purchase are often received from remote points. Sometimes promises to surrender it are exacted beforehand.

Among the Uncpapas the securing of a white buffalo demands from its owner the following rites.

First, the hide must be tanned. For the performance of this duty the owner of the skin selects a virgin and bids her come to the tent set apart for the preliminary ceremonies. He also invites the head men of his gens, they being men of good repute, and has a great feast prepared. A priest or "wakan-man" must be present to fill the pipe, and recite the prayers of the ritual. A handsome suit of clothing consisting of dress, belt, leggings, moccasins, earrings and paint is presented by the owner of the skin to the young girl who is to tan it, and he also presents her with a horse.

Upon her arrival at the tent, after having put on the new dress, a red or dark blue cloth is spread on the floor, and upon it the buffalo skin is laid with the hair side down. Then with her scraper the girl removes the fleshy bits adhering to the skin, while the owner and his guests carefully watch that the skin may not be cut or broken. All the bits which she scrapes off are put into a new white, blue or black blanket which has never before been used, care being taken that none of the bits touch the ground. A soup is made by adding the scrapings of the hide with some choke cherries to a pot of boiling water. None of this soup must be thrown away or lost, but all must be eaten by the men within the tent.[2] When the scraping is completed, the ground of the tent is covered with Artemisia,[3] on which a new blanket is laid, and the buffalo skin spread out.

[2] It is not uncommon to make soup of the scrapings of hide and the addition of cherries gives a favorite flavor. I have often met the dish prepared as described in the text. It is also an Indian custom to eat all that is provided. Except in the care taken to prevent any of the scrapings falling on the ground and treasuring them in a new blanket, there is nothing unusual in the rite described.

[3] Artemisia is used in all the religious festivals I have seen or learned of, and it always is supposed to purify and take away any ill effects which may have been received, and ward off harm. Once two children were playing, a boy and his sister,

The next day the owner prepares a second feast, and again the men are invited. The girl on arriving at the tent is presented with a second outfit similar to the first. She then rubs the skin with a mixture of buffalo liver and brains, and carrying it outside the tent stretches and fastens it to a square frame prepared for it, being careful to place the head toward the east. The men then rise and leave the tent, going out by the left[4] (the opening of tent being towards the east). After a time, passing by the right, they re-enter the tent, and the hide is brought in and placed at the back or west side of the tent. The entrance of the tent must be kept closed during all the ceremonies which take place within it.

Two, three, or four "good men" —that is, "not quarrelsome" men —are designated to remain in the tent to watch the hide as it dries. For this service they receive many presents of goods and horses. The hide after it is dry is spread on a new blanket with the head to the east, and a line is drawn from the left shoulder to the right leg crossing one drawn from the right shoulder to the left leg, and thus forming the cross, the sign of the four winds.[5] Men of high character are chosen, who placing poles above and beneath the skin turn it over, being careful not to touch it with their hands. Then a priest paints upon it between the shoulders a series of concentric red circles using his finger as a brush. This figure is placed on the fur side and is said to represent the Indian camp[6]

and the little girl, in seeking for a hiding place, ran into one of the sacred tents, which must never be touched, or irreverently entered. Her brother searched long to find her and at last he thought of the tent, into which he peeped, and there sat the little maid complacently in the centre of the sacred place, unmindful of any wrong. He called her out, and, when they went home, told his mother of what had happened. She was much disturbed and took her little daughter at once to the wife of the man who kept the tent, and the two women washed the child and wiped her with artemisia. In the same way horses are wiped off and so protected from the evil consequences which would follow when they have accidentally run against sacred articles. I have seen girls who came to a religious festival to give thanks for their recovery from illness, thus wiped with artemisia by a priest. The herb is spread about during certain rites to ward off harm, as when the address to the stones was made, during religious exercises.

[4] The ceremonial entrance into a lodge or enclosure is by the left, and the exit by the right. In social life, however, one does not pass between one's host and the fire. One always goes out by the right, *i. e.*, the north side of the fire. All tents generally face or open to the east.

[5] This sign of the cross, made by connecting diagonally opposite corners, as well as connecting points opposite to each other, so that the two lines shall intersect at right angles, making the figures × and +, are drawn upon skins and marked upon surfaces, and used in decorating pottery, baskets, mats, etc., but whenever seriously drawn by the Sioux invariably represent the four winds.

[6] The concentric circles are found in various parts of our country, carved upon shells, upon the rocks, and even represented in some of the ancient earthworks, such as that at Portsmouth, figured by Squier and Davis, Plate XXVIII, Group *a*. But I would not imply that they are all susceptible of this explanation given me by these Indians.

fires. (See fig. 1, *e*.) The priest while painting prays to the powers of earth and sky and remembers all things that grow.

One of the watchers cuts a pole which is laid upon sticks so as not to touch the ground, and no one must step over it.[7] The owner of the hide must trim the pole and paint it in four lengthwise stripes, using a mixture of red paint and of fat from the heart of the white buffalo, after which it is carried by the sticks, as on a litter, to the place where the final ceremonies are to be performed.

For this occasion a circle of about 30 or 40 feet diameter is formed by a wall of boughs thickly interlaced (fig. 1, *s*), leaving a small opening at the east. While the pole is being erected in the centre (fig. 1, *a*) prayers are said by the officiating priest. All the special ceremonies, as the filling of the pipe, drawing the diagrams, preparing the earth, etc., are accompanied by a ritual of words, and it is believed that should the person saying it make a mistake or omit a word, he would incur death from the sacrilege.

West of the pole the sod is removed from a square of about five feet (fig. 1, *c*) leaving the brown earth exposed which is mellowed and made fine.[8] The sods thus removed are piled at the foot of

[7] To step over a pole set apart for any religious service is a grave misdemeanor. The Sun-dance pole must not be stepped over or unduly handled, and it is carried on a litter of sticks from the woods to the grounds. Poles for sacred purposes are sometimes set and arranged without the hand coming in contact with the wood. Among the Omahas the sacred pole is not to be touched. The White Buffalo Hide, when once dressed, it will be observed, was treated in the same manner, turned by means of sticks, not handled. "Touch not" is the Indian rule for sacred articles, as applied to the people.

[8] Here again is the exposure of the unappropriated earth, from which the power of life has not yet been drawn out into vegetative forms. This U-ma-ne, as the Dakotas call it, is needful to secure the hearing of the address by the life-giving power of the earth, which is appealed to. All the sacred articles are placed upon it: the skull, hide and black earth. From the earth thus made visible powers of various kinds are desired, as strength, good fortune, foretelling the future, and success in many ways is secured. The custom of mellowing the earth seems to have been widely extended. The following myth belonging to the Mus-co-gee Indians and given me by one of their number, Mr. G. W. Grayson, has its poetry enhanced by recalling the use of the "U-ma-ne," the meaning of the colors, and the sacredness of the ritual songs and their power; for, as an old priest said to me, "the music comes from beyond this life." The "Subbea" is a sort of amulet or charm, a small brilliant stone, not much larger than a good-sized pin-head. This is wrapped in a piece of buckskin and securely fastened to some part of the person. Among many tribes the hair is the place where such charms are usually worn, the sacred article being tied in the braids.

"The Song of the Subbea is very sacred and held in great veneration by the initiated and under no circumstances is it ever sung to gratify curiosity. It was given to the Indian in this manner. Long ago a hunter had wandered far in a solitary place; for days he walked through the solemn woods, sleeping at night at the foot of a tall tree, and rising in the gray dawn to pursue his lonely way. Not an animal crossed his path. Even the

the pole towards the east (fig. 1, *b*). A skull of a buffalo is placed in the centre of the square of exposed earth (fig. 1, *c*), and on the forehead of the skull is painted a figure as represented in fig. 1, *d*. This is said to be a prayer which remembers the powers of earth, wind, sun, water and the buffalo. The priest makes four circles about the skull from left to right with a bunch of Artemisia held in his right hand thrusting the plant into the left eye socket, repeating the motion with a second bunch which is placed in the right eye socket, and a third which is placed in the cavity of the mouth[9] (fig. 1, *c*).

birds were rare; only the leaves, as they replied to the passing breezes, broke the silence that girdled the man. On, on, he walked, through deep ravines, where overhead the trees clasped each other and shut out the light; up he mounted over hill sides, but could not escape the forest or meet with any living creature. At last he found himself high up upon a mountain-side in a more wild and solitary place than any spot he had ever seen. The weird silence, the untrampled herbage, the lofty height and cloudless sky filled him with superstitious awe, and a dread feeling that he was the first human being to look upon this solemn grandeur stole over him, and he stood reverently facing the unseen and unknown powers of nature, feeling his helplessness and poverty. As he stood thus, a gentle breeze seemed to touch him softly, and he thought that he heard something like a human voice. He started to move away, but again he heard the voice, this time more distinctly. He listened; the voice grew clearer. Astonished and awestricken, he seemed rooted to the spot, hearing a low, sweet voice, singing a song that seemed to enter into his soul and captivate it. The song was repeated, and soon he felt that he could never forget it, that it was all his own, given to him by a god. He eagerly peered about to see whence the voice had come. Not far from where he was standing he saw *a circular plot of ground, with every vestige of grass or other vegetation carefully cleared away as by the hand of man, in the centre of which stood a little plant of ordinary appearance, bearing a blue flower, swaying gracefully to and fro and sweetly singing the song of the Subbea.* He now knew that great good fortune had come to him, and that the potency of the song he could impart to the little stone, the Subbea, by singing this song over it as only one so initiated could sing it. Thus the song of the Subbea was given to man and its mysterious power conveyed to the charms so secretly kept and carried and relied upon as circumstances seemed to demand. Among the effects the Subbea can produce are the following: the possessor can cause any one of the opposite sex to become so absorbingly enamoured as to brave all ridicule or censure and yield completely to his will. Again, success will follow the pursuit of game; this too will yield to the power of the charm, and no one can equal the fortune of the fortunate possessor. Again, when the possessor journeys in a strange land or attends a large gathering of people, the charm will make the owner attractive and acceptable, and thus success will attend all his dealings. To fully secure all the powers, and the results which belong to the Subbea, the owner must 'intelligently carry it,' which means he must accept, without doubting, the belief that the charm will be potent. Those who possess this rare charm are often unwilling to acknowledge it and desire to keep it secret. Any person known to have one is usually avoided by women who fear lest they may fall victims to its power."

These old fables and superstitions are fast fading away and one has to search among the old people to gather them for preservation; "so that," to quote my Indian friend, "when we have all passed away those coming after us may see and remark that men and women have been here before us."

[9] The form painted upon the buffalo skull differs some from that put upon the skull in the sun-dance, although the central figure has the same meaning with that on the sun-dance skull and resembles it. The sage is in both cases used with the same ceremonial, and has the same meaning, closing the orifices with that which will ward off harm.

A larger excavation is similarly made a little distance to the north of the skull (fig. 1, *e*), lined with Artemisia and covered with a new blanket on which the buffalo hide (fig. 1, *g*) is laid with

FIG. 1.

Arrangement within enclosure of boughs.

the head toward the pole. Between this and the pole, about two feet square of earth is prepared by removing the sod and mellowing the soil. In the centre of this square a small heap (fig. 1, *i*)

of a peculiar black earth[10] is transferred from a new blanket and covered with a red cloth.

Gifts to be distributed by the owner of the hide are laid at the leg flaps of the skin all being pointed toward the black earth. Should moccasins be among the offerings the toe must be directed that way. Near the head of the hide is laid an eagle feather war bonnet. Upon each side of the hide (fig. 1, *g*) are laid the two pipes, their stems decorated with porcupine quill work, which, after having been filled with appropriate ceremony, have had their bowls sealed with red paint and fat from the buffalo's heart. To the north of the hide is placed a wooden plate (fig. 1, *m*) about a foot in diameter which may be made from the ash, cottonwood, box elder, or hackberry tree, and laid beside it a spoon fashioned from the horn of the Rocky Mountain sheep.[11] Behind the plate is thrust in the ground a stick, having the upper end split at right angles, and four tufts of down inserted (fig. 1, *l*) to represent the four winds.

The priest (fig. 1, *j*) sits beyond the plate to the north. At his right hand is a small square board (fig. 1, *k*) having on it down, colored red. Before him, a little to the left, a blanket (fig. 1, *o*) is spread on which is put a heap of "choke cherries;" directly in front of him are laid a few live coals (fig. 1, *h*) and sweet grass dropped on them to smoulder.[12] To the right is set a wooden dish painted red, and containing water (fig. 1, *n*). A few feet to the left of the blanket containing the cherries sits an assistant; later this place is occupied by a near relative of the owner of the hide, who is placed between this man and the priest but a little back of them (fig. 1, *q*). Around the sides of the enclosure, excepting that portion at the west back of the buffalo skull, sit the chiefs (fig. 1, *r*) of the tribe, each one in his ceremonial dress.

[10] This black earth was described as resembling coal and being rare and difficult to find. It is always gathered from the sides of ravines, or where banks have fallen away exposing it. I am inclined to the opinion that it is pulverized lignite. During all the ceremonies of this Feast, blankets are mentioned as of different colors, and the red cloth put over the pile of black earth. I was told that formerly skins were used and they were painted in the colors mentioned, a skin painted all over red in place of red cloth.

[11] There are some superstitions connected with the horn of the Rocky Mountain sheep. It possesses among other powers that of keeping its owner from the temptation to tell a lie, which is counted a grave sin. Truth as to fact, being of the Indian's code of morals.

[12] The use of sweet grass or some aromatic shrub is found in all religious ceremonials of an elaborate character, smoke seeming to form a sort of medium, or perhaps, more properly, a messenger between the seen and unseen, the Indian and the god.

As each article is placed and arranged the action is accompanied with occasional chants having simple explanatory words. These chants form a part of the ritual of the festival.[13]

When all is in readiness the ceremonies begin by the priest lifting the spoon and slowly advancing it to the smouldering grass, stopping four times on the way, and then describing a circle from left to right through the smoke. He then approaches the pile of cherries, fills the spoon with them, and advances toward the plate in the same fourfold manner, circles it and places the cherries on the sunrise side. The ceremony of approaching the fire is repeated, and the cherries taken and the plate reached in the same ceremonial manner as the spoonfuls are placed successively on the south, west and north sides of the plate. After this action which is in honor of the four winds, the priest dips with the spoon the rest of the cherries from the blanket to the centre of the plate using no further ceremonial. When this is accomplished the spoon is again consecrated by the four approaches and circling of the smoke, and filled with water from the red dish. It is then raised toward the sun and lowered, and the plate approached by the full ceremonial, then circled, and the water poured over the pile of cherries on the eastern edge. In the same manner observing the detail of approaches to the fire, lifting of the water and reaching the plate, a spoonful of water is poured over the piles on the south, west and north sides of the plate.

The priest then consecrates his right hand in the smoke, using the same manner of approach and circle, and by a similar action reaches toward the board containing the swan's down and picks up a bunch with his thumb and forefinger, and advances in the same ceremonial way to the plate and places the down by the eastern pile where it adheres to the moistened edge of the plate. In this manner he transfers a tuft from the board to each of the piles on the south, west and north side of the dish, always first consecrating his hand and observing the ritual of motion. After this ceremony he advances both hands toward the smoke, extending his fingers, making the ceremonial pauses, and circling from left to right, after which he similarly approaches the dish, and grasps it with his right hand between the east and south pile of cherries, and

[13] Every religious festival and every dance, and all the great events of life have songs or chants appropriate to each, as the Ritual Songs, the Song of a Vision, the Death Song. Many of these are traditional and originally received supernaturally.

his left hand between the west and north piles. Then he slowly rotates the plate, stopping at each point of the compass, turning from left to right and grasping the dish with his hands in the same relative places with each new movement. In this way he turns the plate completely around, bringing it back to its first position. The movement is a very steady and careful one, for none of the contents of the plate must be disturbed or lost.

The owner of the hide now rises and comes near the smouldering grass, and extends his hands toward and through the smoke in the same ceremonial manner, resting his hands for a moment in the smoke. He then passes his left hand down his right arm from the shoulder to the wrist, repeating the same motion with the right hand upon the left arm,[14] then rising he goes toward the plate and grasps it in the same way the priest had done; and, holding it thus, he walks with it around the circle and then deposits it at the left cheek of the buffalo hide. Silence has been strictly maintained during this action, but as the plate is set down the company of chiefs bow their heads and cry with a loud voice "Hei-ya," which was explained to me as an ancient response meaning "we give thanks."

The owner of the hide resumes his seat and the priest extends both his hands toward the smouldering grass, making the four ceremonial stops and the circle. With his hands thus consecrated he makes the same ceremonial approach to a flat stick[15] about two to three inches broad and three and a half feet long which lay at the left of the hide; taking up this stick he again approaches the smoke in the same manner and consecrates the stick. The red cloth is removed from the small heap of black earth and the priest with deep solemnity of manner makes the formal approach toward it holding the stick with both hands, the left hand in advance of the right. After circling the heap of black earth, he touches it first on the east, then on the south, west and north, leaving an impress at each touch. After this ceremony he spreads the pile so as to leave it about twelve or thirteen inches in diameter.

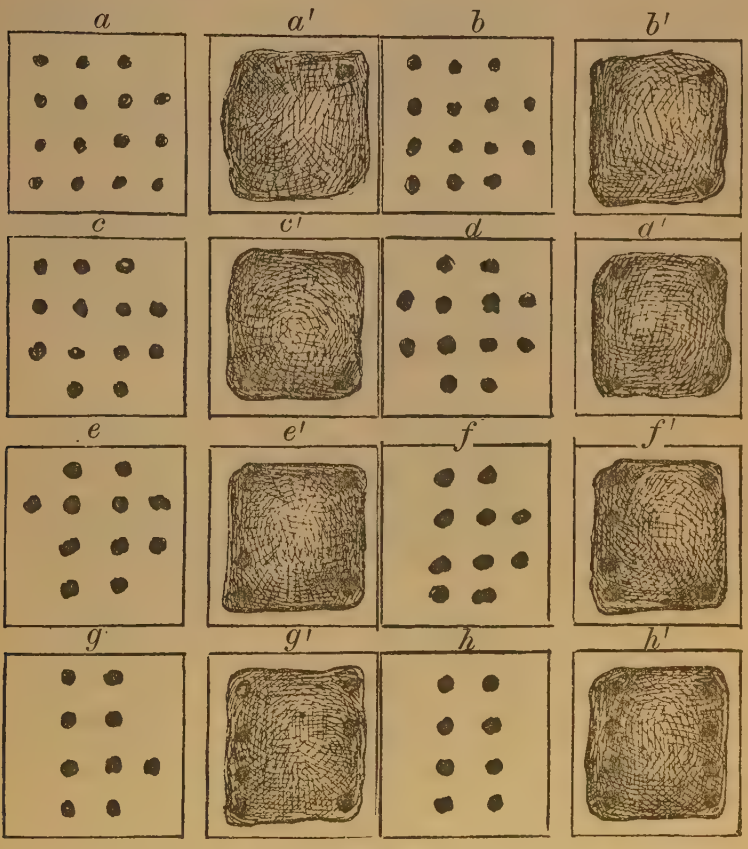
A near relation of the owner of the hide approaches, bringing with him two square pieces of board bound together by buckskin

[14] This is the sign of giving thanks and is used on occasions of solemnity or grave importance.

[15] One is reminded of the flat stick used by the Iroquois in the New Year festival, when two of the keepers of the faith entered each house and lifting ashes sprinkled the hearth, reciting a formula. (Morgan, League of the Iroquois, p. 211.)

thongs, and occupies the place of the assistant. Between these two boards are sixteen bunches of down, colored with red ochre and laid in four parallel lines, four bunches in a line. The down has been secured by the owner of the hide from the wild goose, and prepared by him for this solemn occasion. After loosening the strings about the board, the one in charge of it consecrates

FIG. 2.



Showing the figures made in transferring the bunches of down from the board to the black earth.

his hands in the formal manner, and lifting off the upper board picks up with his right hand the bunch of down at the right hand end of the upper line (fig. 2, *a*), and passes it toward the priest,

who, after consecrating the stick, extends it to receive the down which is placed thereon, and the ceremonial advance is then made toward the black earth. On reaching it, one edge of the stick is used to make a circular hole[16] on the eastern side of the earth, corresponding to the position on the board from which the tuft has

FIG. 3.

Showing the figures made in transferring the bunches of down from the board to the black earth.

been taken. The down is then dropped from the stick into the hole prepared for it (fig. 2, *a'*). This part of the ceremony is performed very slowly and carefully, as it is said to be one of the

[16] The cuplike holes, made in the black earth, suggest a possible connection with those cut in rocks and their religious significance.

holiest acts of worship, and any accident, such as letting fall the down, or not making the hole in exact position and form, or not successfully transferring the down, would incur disaster and death. When the down rests in the black earth all the people bow their heads and cry, "Hei-ya." Again the male relative in charge of the boards consecrates his hand and picks up the bunch of down at the right hand end of the lower line (fig. 2, *b*). The priest consecrates the stick anew and the down is placed upon it and the earth reached in the ceremonial manner, and a circular hole made corresponding to the place whence the down was taken. When the down is put on the earth (fig. 2, *b'*), again the people bow their heads and cry, "Hei-ya." With the same elaborate detail, the tuft from the left hand end of the lower line on the board (fig. 2, *c*) is transferred to a hole similarly placed in the black earth (fig. 2, *c'*), the people responding to the action. The same ceremony attends the transfer of the tuft from the left hand end of the upper line (fig. 2, *d*) to a like position in the black earth (fig. 2, *d'*). At the completion of the four points those present lift up their hands, the palms elevated, and then bowing their heads lay their palms on the ground and cry, "Hei-ya."

Pursuing the same elaborate ceremonies the remaining twelve tufts are transferred from the board to the black earth, the people responding.

The diagrams (represented in figs. 2 and 3, *a* to *p*) will show the series of figures produced at each stage of the transfer, and the holes made in the black earth into which the down was placed.

It would be difficult to overestimate the seriousness and devoutness of the men during this portion of the recital. They declared over and over again, "this is very holy." After the ceremony had been completed they explained it as follows:

The black earth is the land which brings forth: it is the mother. The down and the red color obtained from the ochre are the representatives of living things; the fruits of the earth, and men, all of which live and rest on the earth. The four holes at the corners are the four winds which stand toward the land and hold health, and take away sickness. The holes between these four represent the progression of the people. To quote their exact words: "The old die, the new are born, and the race lives on forever. The white buffalo is the chief of the herd, and from the buffalo comes our animal food and this gives life and strength. We put the dish

with the cherries and water beside the head of the hide, because the buffalo likes these things, they make him to live. We eat the cherries and drink the water that there may be no end of fruit and water with us."

At the conclusion of the ceremony of the black earth, the priest turns to the owner of the hide and says, "Are you ready"? Then the owner rises and goes toward the plate, makes a circle from left to right turning the plate, and then stands holding the plate to the east. Then the priest drinks from the plate, and all the people cry "Hei-ya." The owner then goes round the circle and each chief eats of the cherries and drinks saying as he does so: "Wi ca-'sa yatapi owasin," meaning "all the chiefs." The owner may not eat or drink as he is not yet a chief. When all have eaten and the plate emptied, it is put back beside the buffalo head.

Pounded buffalo meat is now brought in and the plate placed before the priest. After consecrating his hand four pinches of meat are successively offered to the four winds[17] and placed upon the four sides of the dish. The four sons of the owner enter and sit at the left of the priest. When all is ready the priest again consecrates his hand in the formal manner, and takes up the pinch of meat at the eastern side of the dish and holding it up, says:

"Son, when men come to your tribe, give to them gifts, moccasins, horses and other things; as I now give you this meat, it will go into your body and make you to live long, so you will help those who come to your people." The meat is then put into the child's mouth, who eats it. Again consecrating his hand, he takes the pinch of meat on the south side and, holding it, says to the second child:

"Son, if you are visiting a tribe, or are camping anywhere, and see an orphan child give him half of what you possess if it be ever so little; as I now give you this meat, it will go into your body and make you to live long, so you by your acts to the child will raise it up." Repeating the consecration of his hand and taking the pinch of meat from the western side raising it, he says to the third son:

"Son, if you are living in a good lodge and prospering, you must treat well (*i. e.*, entertain and give presents) all that come to your lodge, and children will be born to you; as I now give you

[17] The usual form of asking a blessing upon food. The bit of meat or whatever the article may be, is, after the elevation, generally dropped in the fire, or buried. I never saw this ceremony omitted when living among Indians who retained their native religion.

this meat, it will go into your body and make you to live long, so children will be raised up to you, and they shall follow in the path of your father." Passing his hand through the smoke in the ceremonial manner, and taking the pinch of meat from the north side of the plate, raising it he says to the fourth son:

"Grandchild, if any of your relatives be wounded, make the smoke of sweet grass, so will you become head of the chiefs; as I give you this meat, it will go into your body and cause you to live long, for in this way all my sons have been fed."

At the end of this ceremony kettles of food are brought in. The chiefs eat of the pounded meat. All the tribe are called to a feast outside the enclosure, and each one who comes paints his face red.

After the chiefs have eaten, the priest takes up the pipes and reciting a prayer presents them to the buffalo hide, then passes them through the smoke and removes the sealing of tallow and red paint from the bowls, and lights them from a coal brought by an attendant. They are handed to the owner of the hide who takes a few puffs, when they are passed around the circle of chiefs, one pipe following the other. When they are empty they are returned to their place beside the hide. With the aid of one of the chiefs the priest using a new knife cuts the hide lengthwise into three parts. The owner receives the centre strip, the chiefs present are given bands cut from the outside pieces. These bands are from six to eight inches wide. These are wound about the head and preserved as a life-long memento. This band secures to its owner good thoughts and good luck. It is kept in the personal pack with the man's best clothing, pipe and tobacco bag, the ornaments he wears on his head, and the animal skin which is the religious symbol of his vision.[18] The articles contained in this pack were said to be worn on such occasions as "when many people come together, to dance and pray and hold up the pipes." This band from the white buffalo hide is never worn during war or in battle.

[18] The skin of the animal of the kind seen in a vision, and which is the visible form of the answer to the religious appeal made to the supernatural powers, is always counted as one of the most, if not the most, sacred, of personal articles. It is only worn upon occasions of solemnity or great danger, as in war, or cases of necessity, as when searching for game in time of scarcity.

In one of the religious festivals of the Iroquois the following duties were enjoined: "If you tie up the clothes of an orphan child, the Great Spirit will notice it, and reward you for it." "To adopt an orphan and bring it up in virtuous ways is pleasing to the Great Spirit." "If a stranger wander about your abode, welcome him to your home, be hospitable toward him, speak to him with kind words." (Hist. of Tuscarora Indians, Elias Johnson, p. 37.)

After the distribution of the hide, the skull is brought from its "U-ma-ne" or spot of mellowed earth (fig. 1, *c*), and laid at the foot of the pole. The eagle war bonnet is broken up and scattered over it. A disk of shell is crushed to a powder[19] and poured over the skull. A blue ornament resembling in shape the favorite "elk tooth" decoration called "the blue cloud," and said to be made from beads,[20] is also powdered and thrown upon the skull. The red cloth which was spread over the pile of black earth is buried with a disk of shell upon a hill near by, all the gifts laid at the feet of the hide and the pipes are given to the poor of the tribe. Presents of horses are made to the priests. The owner of the hide parts with all his clothing, steps forth from these initiatory ceremonies naked,[21] and in this guise returns to his wife and children. The people at once contribute clothing to him, present him with a tent and he begins life anew. The pole is left standing. When it falls the man in whose honor it was raised, or his descendants, must give a feast to all the tribe.[22]

[19] The powdering of a shell occurs also in the offerings about the pole of the sun-dance. One is reminded of the "praying powder" used by the Pueblo Indians, which is carried by them in baskets of pottery and sprinkled on the ground and on the feathered praying sticks during their religious ceremonies. These disks, so far as I have seen them, are made of marine shells.

[20] The blue cloud I did not see, but from the account of it, it would seem to be of the manufacture described by Lewis and Clark as practised among a select few of the Ricaras and Mandans, and derived from the Snake Indians. (See pp. 125–126.)

[21] Nakedness is the sign of sore trouble, bereavement, great humility. In many ceremonies the laying aside of clothes is the symbol of a kind of self-abnegation. When the ceremony of piercing the ears of children takes place, the gaily dressed child is stripped of its clothing and this is then given away. The religious teaching and formulas of the Indian demand much giving away. In the absence of genuine commerce this becomes of great importance to the people, as a legitimate mode of exchange. When the Indians come in contact with our civilization it leads to misunderstanding and misfortune. Accumulation with the Indian is always for the purpose of disposing of his goods to secure honors, which, although they may be social, are all closely connected with religious forms; church and state being completely at one in the lower forms of society. This long habit, bred of religious custom, tends to what we denominate improvidence and shiftlessness, when practised in the midst of white environment, and this heredity of training is a factor to be considered by those who labor to civilize the Indians. The old priest said toward the close of his description of the festival, "Thus my grandfather did, thus he was made a holy chief, and his son after him, and I too, who am now an old man. They have told me that I must do thus to do right, and I try to do right and teach my children so that they may follow in the right way and live long."

[22] The conferences at which the notes were taken from which I have written the foregoing account occupied three days, and during their continuance great care was taken to close the tent tightly, excluding all but the few chosen men, while guards were placed outside to prevent eavesdropping. The weather fortunately was fine; a storm would have broken the narrative probably irrevocably.

Throughout the camp a watchful interest, a superstitious dread prevailed, as it was known that sacred things were being revealed to me. The more conservative Indians were sure that punishment would follow the sacrilege.

When that point of the description was reached which referred to the black earth, the old priest, who was talking, was interrupted by one of the younger men, a person of unusual intelligence and vigor. He rose and with eyes fixed on mine advanced directly toward me and halting regarded me with the closest scrutiny. After an awe-inspiring silence he extended his hand in greeting. Then he said "We pray by these things and they are great. We never talk about the white buffalo skin except when we drink water at counsel feasts. You have tried to help us and you are the first and only person to hear of these things." I replied that from my heart I thanked them for what they told me, that the white people knew little of the Indians' religion and only the Indians could explain it. The more they told me the more I could help them.

The chief then told the men who were describing the ceremonial to be very careful not to make a mistake or miss a word lest evil befall them.

As I entered the chief's tent one day, one of the leading men came rapidly toward me naked and looked angry. Other Indians followed him into the tent. The priest said, "Evil has come to us!" An Indian repeated angrily, "Yes, evil has come to us of your talking." "My friends, what has happened?" I asked. "A woman was nearly drowned—this man"—pointing to the naked person who had followed me into the tent—"hardly saved her." Another man added, "A child nearly choked to death coughing." The men who had talked with me seemed troubled and embarrassed. The chief sat with his head down drawing figures on the earth with a stick. The other men were very angry. It was a critical moment, but rising and crossing the tent, I extended my hand to the naked man, saying: "Friend, it is *good* fortune, the woman did not drown, you saved her," and turning to the other man I added, "and the child got well." This new aspect of the case being borne out by the facts met with approbation, for the naked man accepted my hand and then resumed his clothing. The others all proffered me their friendship. In view of the supposed bad fortune only two men, who were, however, the most important ones, were willing to talk, and they thought it best to adjourn to some distance from the tent where we might be quite unobserved. They painted themselves for the occasion, with red on their faces and blue stripes on their hair. Their pipe was also freshly painted red.

Before resuming the narrative the two men seated themselves toward the sunrise, lit the pipe, bowed to the earth and passed it, uttering a prayer. They were very serious and anxious that no mistake should occur. They would not draw any diagrams but allowed me to draw some, and corrected my mistakes. The entire day was thus spent.

Most of two hours was consumed in making the diagram showing the transfer of the down from the board to the black earth. Every detail was acted out, not one omitted. At the close the younger priest said, "Look at me. I look at you and I shall never forget you. Look at me, you are never to forget me." Then as he paused for my reply, I said, "I am glad you will never forget me for you will remember the face of a friend, and I shall not forget you." Then rising he approached me and with great earnestness fastened his eyes upon me, saying, "Promise me that no harm shall come to me or my people because of what we have told you," and I said "I do not think any harm will come to you because you have talked to me." A second time he asked my promise and I made the same answer. Meanwhile the old priest sat bowed to the earth, and evidently reciting some formula. A third time, with increased earnestness the same assurance was asked and I made the same reply. Then coming still nearer and looking at me with an expression I can never forget, as it showed me how profoundly sacred had been their disclosures, he said: "Promise me by your God, that no harm shall come to me or to my people because I have spoken to you of these sacred things." I answered, "My friend, you ask me to promise you that which only God himself could promise. I will pray my God that no harm shall come to you or to your people because you have talked with me." Then extending my hand, which he took, this strange scene came to a close.

THE ELK MYSTERY OR FESTIVAL. OGALLALA SIOUX.

By Alice C. Fletcher.

Among the Souan family of Indians there are societies, religious in character, which are distinguished by the name of some animal.[1] Each society has a ritual composed of chants and songs to be sung during different parts of the ceremonies, having words describing in simple and direct terms the act which accompanies the music. These musical rituals, it is often claimed, have been received in a mysterious or supernatural manner, and are therefore regarded as possessing a religious power. Every member is taught these songs after his reception into the society, and the music is thus handed down from generation to generation. Other songs are sometimes sung which have been composed by members

[1] The Indian's religion is generally spoken of as a nature and animal worship. The term seems too broadcast and indiscriminate. Careful inquiry and observation fail to show that the Indian actually worships the objects which are set up or mentioned by him in his ceremonies. The earth, the four winds, the sun, moon and stars, the stones, the water, the various animals, are all exponents of a mysterious life and power encompassing the Indian and filling him with vague apprehension and desire to propitiate and induce to friendly relations. The latter is attempted not so much through the ideas of sacrifice as through more or less ceremonial appeals. More faith is put in ritual and a careful observance of forms than in any act of self-denial in its moral sense, as we understand it. The claim of relationship is used to strengthen the appeal, since the tie of kindred among the Indians is one which cannot be ignored or disregarded, the terms grandfather and grandmother being most general and implying dependence, respect and the recognition of authority.

One of the simplest and most picturesque explanations of the use of the varied forms of life in the Indian worship was given to me by a thoughtful Indian chief. He said: "Everything as it moves, now and then, here and there, makes stops. The bird as it flies stops in one place to make its nest, and in another to rest in its flight. A man when he goes forth stops when he wills. So the god has stopped. The sun, which is so bright and beautiful, is one place where he has stopped. The moon, the stars, the winds he has been with. The trees, the animals, are all where he has stopped, and the Indian thinks of these places and sends his prayers there to reach the place where the god has stopped and win help and a blessing."

The vague feeling after unity is here discernible, but it is like the cry of a child rather than the articulate speech of a man, To the Indian mind the life of the universe has not been analyzed, classified, and a great synthesis formed of the parts. To him the varied forms are all equally important and noble. A devout old Indian said: "The tree is like a human being, for it has life and grows, so we pray to it and put our offerings on it that the god may help us." In the same spirit the apology is offered over the slaughtered animal, for the life of the one is taken to supplement the life of the other; "that it may cause us to live," one formula expresses it. These manifestations of life, stopping places of the god, cannot therefore be accurately called objects of worship, or symbols; they appear to be more like media of communication with the permeating occult force which is vaguely and fearfully apprehended. As a consequence, the Indian stands abreast with nature. He does not face it, and hence cannot master or coerce it, or view it scientifically and apart from his own mental and emotional life. He appeals to it, but does not worship it.

and thus belong to the society. Some societies admit women to membership, through their own visions, or occasionally by those of their husbands, but more generally by means of the visions of male relatives. The women sit in a place assigned them, and those possessing clear soprano voices are instructed in the music, and accompany in high tenor voices the men who sing in unison. The songs of a society are rarely sung, except during the ceremonies to which they belong or on some occasion of danger or quest for property. The ritual chants and songs belonging to the great tribal religious ceremonies are strictly guarded and never sounded at any other time. Those belonging to minor societies it is permissible to use occasionally.

All the societies have certain articles or symbols which are always used or at least present during a ceremony or festival, as, the pipe, the sacred dish, the fire, the sweet grass or aromatic shrub, the prepared space of earth, the symbols formed upon it, or marked upon some reflecting surface, or on the skin of an animal. The rites peculiar to each society vary and there are generally articles used characteristic of the animal whose name the mystery bears. Each festival of the same society may differ in minor points, as an assembly only takes place in accordance with a vision, the details of which must be scrupulously fulfilled. A vision, I was frequently told, comes of God, and a man who does not act it all out faithfully commits a sin, and evil fortune will befall him or his parents in consequence of the dereliction.

Membership in these societies is not confined to any particular gens or grouping of gens, but depends upon supernatural indications over which the individual has no control. The animal which appears to a man in a vision during his religious fasting determines to which society he must belong.

The maturity of the sexes is a period of serious and religious experiences which are preparatory by their character for the entrance of the youth or maiden into the religious and secular responsibilities of life, both individual and tribal. Among the tribes which hold especial public ceremonies announcing the maturity of a girl, these rites are held not far from the actual time of puberty, and indicate the close of childhood and entrance of the person into the social status of womanhood. The public festival has, however, been preceded by private religious rites. With young men, the religious training precedes and follows puberty, and the entrance upon manhood is publicly announced

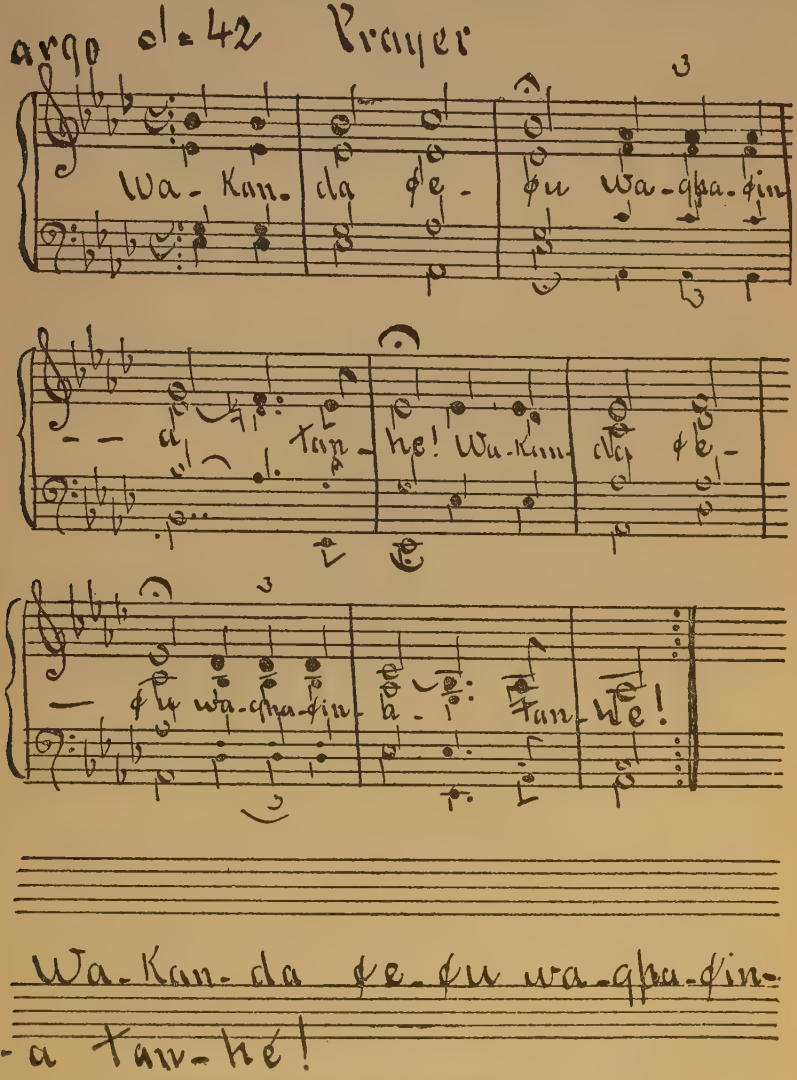
by the youth joining in the dangers and duties of tribal life. According to the old customs, a young man did not take a wife until he had proved his prowess, and thus become enrolled among the manly element, or braves as they are sometimes spoken of. The initial fasts of warriors have been mistaken sometimes for ceremonials of puberty.

Among pious families the male children are taught by their parents to look forward to the seeking of personal religious experiences in visions, and the boys are encouraged to go forth as early as the eleventh year of their age. The father makes a small bow and arrows and presents them to his son; these are for protection during the lonely vigil and are not to be used to secure food. With prayerful hearts the parents smear the boy's head and face with moistened earth, in token of humility, and the child is dismissed to seek a secluded spot where he is to remain, calling upon the god by using the ritual chant of the petition for such occasions, until the vision appears, or exhaustion drives him home. Visions are sometimes difficult to secure, many tests being needful, and I have learned of a few Indians who never could obtain one. These fastings are repeated after the vision has been seen, as they belong to the religious rites proper to youth. They are believed to be strengthening to the man, by laying up a store of experiences which are drawn upon for succor in the day of battle, or of trouble. At such times, or when on missions of importance, the man recalls his vision and sings its songs thus appealing to his god. After the youth has entered the roll of manhood, he seldom seeks through fasting a return of the vision, except in cases of unusual anxiety or responsibility when supernatural aid is thus invoked. Only men, known as holy-men, continue in later life these religious exercises of their youth.

No coercion is brought directly to bear upon a lad to perform these rites, but should he unduly defer their performance he would be apt to lose social caste. Boys frequently go off of their own accord for the first experience, and always voluntarily, except when as children their parents suggest the act.

When a youth has made up his mind to submit himself to the ordeal of facing the supernatural and receiving the sign which will be sacred to him all his life, he takes his bow and arrows and quietly withdraws from his father's lodge, retiring to a lonely place distant from the camp. No one accosts him or notices his departure, no one gives him counsel or direction, entirely alone he goes

out to meet through physical privation the form which will be to him a sort of patron saint, or mediator. He seats himself upon the ground, puts moistened earth upon his head and face, draws his robe about him, and awaits the coming of the vision, chanting continuously the following:[2] the equivalent of these words



[2] The chant given is one used by the Omaha children and men under similar circumstances.

in English being: "O, mysterious one (or God) have compassion, for I am poor indeed."[3]

It is difficult for one of our own race to enter fully into the mental condition of an Indian youth so placed; one may easily fancy too much, and on the other hand err by accepting too little. The simplicity of Indian life as compared with the complexity of our own is markedly contrasted by these peculiarities. From our birth we are hedged about with questions of law, cause and effect, philosophies, coördinated obligations, all of which force us from too tense a subjectivity, while in Indian life there is little either social or religious adverse to natural instincts, and therefore as this youth sits there, with the tide of life setting in strongly upon him, his thoughts, if one may properly call them such, become blended with the silence and objects about him. All night he must face the chance of hearing ghosts whistle and cry, but these sounds will only tend to make him sink deeper into fancies of natural things, of the animals which furnish food and the chase, of the birds which soar high and escape harm, for these sounds he hears come from uneasy souls who in their earthly life failed to practise carefully the rites of their religious society. If in the midst of his chant he falls asleep, he wakes to another day of watching and fasting. Two, three, four and even five days may pass while the youth waits for the mental picture to come to him with such vividness and strength, as to bring to him the inward conviction that it is indeed a vision. When at last the vision comes, it is the one thing that the Indian holds as his own, incapable of loss. He never in all his life tells it to any one in its minutest details. The most that others may know of it is, when he acts it out on entering the society named for the animal he has seen, or, when on going out to battle or being embarked on some important enterprise, he recalls the vision and sings its song. There is occasionally an Indian who keeps so close counsel that he will not even join the society, and treasures secretly the sign of the animal in the personal bag, a sort of amulet which each one possesses.

[3] Concerning the private forms of religious observances, the Indians are very reserved. It was long before I was trusted with the facts mentioned concerning their children and the ritual chant when fasting. It required much persuasion to be allowed to write down the music or obtain permission to tell "the white people." The unvarying reply was; "The white people do not understand us, they laugh at our sacred things, and they will laugh at these things which they did not know before." I plead that the laugh came from ignorance and a better understanding would secure better treatment. On these terms I obtained consent to make public many of the facts set forth in this paper; for, although a close observer, I was not a spy among my trusting friends.

When the ordeal is over, the youth weakened and exhausted returns to his father's lodge, partakes of food and rests. No one asks him of his days of absence, no one even mentions the fact that he has been gone. Four days he speaks little. After that period he may, if he choose, select an old and worthy man, who is known to have seen in a vision the same kind of animal, and after eating and smoking with the man, when they are quite alone the youth may tell that he has had a vision of an elk or hawk or whatever animal he saw in his vision. Should he seek to tell this before the appointed time, four days, had elapsed, his vision would be the same as lost to him. After he has spoken to the old man belonging to the proper society, it becomes the duty of the youth to travel until he shall meet the animal he saw, when he must slay it, and preserve either the whole or a portion. This trophy becomes the visible sign of his vision, and is the most sacred thing he can ever possess. He may wear it upon his scalp lock or on his person during sacred festivals, when going to war, or at other important times.[4]

[4] There are some animals which are esteemed as bringing better fortune than others. Hawks are lucky. Bears are "not so good," as the bear is slow and clumsy, and apt to be wounded; and although savage when cornered is not as likely as some animals to escape harm. There are some things which to dream of is most unlucky. Snakes are said to be terrible; they seek to enter a man's ears or nose or mouth, and should one succeed, it is a sure sign of death. "No good comes from snakes." Among some tribes in this family of Indians, to dream of the moon is regarded as a grave calamity. The man sees the moon having two hands, one holds a bow and arrows, the other, the burden strap of a woman. The moon bids the dreamer take his choice; when the man reaches to take the bow, the hands suddenly cross and try to force the strap upon the man, who struggles to waken before he takes it, and he also tries to succeed in capturing the bow. In either event he escapes the penalty of the dream. Should he fail and become possessed of the strap, he is doomed to be like a woman. He may conceal his dream and endeavor to avoid showing his ill fortune, but few men succeed in this effort after having taken the strap in the dream. Such men speak as women, pursue their avocations and sometimes adopt the dress of the female sex, and they may become subject to gross actions. A man who had the misfortune to be forced to this life tried to resist, his father gave him bow and arrows, but the penalty of his vision so wrought upon his mind that, unable to endure the abnormal life he committed suicide. Among some of the Pueblo Indians, I am informed, there are men dressed as women, and it is stated they practise similar unseemly customs. I do not know if they too are moon dreamers.

Some animal societies are medical in character, as the Buffalo Society among the Omahas; the members attend to wounds and injuries. Their legend says: "Long ago a man had a vision of buffaloes and he saw that one of the animals was wounded. His companions attended him sitting and then rising and walking about him, chewing meanwhile a peculiar root and injecting their saliva into the wound. Four days they did this and after that period declared their companion well." The members of the society possess the secret of this root and treat a wounded man as the buffaloes acted in the vision. At the end of four days the patient is stood on his feet, forced to walk a few steps and declared cured. The rest is left to natural recuperation. They never amputate, but bind fractures in splints.

If the youth determines to join the society named from the animal of his vision, he will have to wait until he shall have accumulated sufficient property to meet the demands of the occasion. It will be needful for him to provide a feast and to give away ponies, blankets or robes and ornamented articles; these latter are contributed by his wife or female relatives.

In 1882 I witnessed the acting out of a vision of an elk by an Ogallala Indian. The man was apparently about 22 or 23 years old and was very much in earnest. The day was bright and balmy, with here and there a patch of light clouds to break the deep blue of the sky. Early in the morning the members of the elk society gathered at the invitation of the neophyte. A new tent had been expressly prepared and was set up to the west of the camp, on an open space quite apart from the village. The door of the tent faced the east. The duty of setting the tent belongs to the women who are members of the society. Around the top part of the tent were painted four blue bands; across the entrance an elk was drawn in red in such a manner that whoever entered the lodge passed through the body of the animal.

The interior of the tent was prepared, as represented in the following diagram, by the elk members, among whom were a few

Among the Santees in past times, a man who should dream of buffalo must announce it in the following manner: he takes the head of a buffalo he has killed, carefully removes the skin, preserving it as nearly whole as possible and throws away the skull and the flesh. He then restores the skin to its natural shape and lets it cure. When this has taken place, a few feet square of earth is set apart at the back of the lodge, the sods cut off and the exposed earth made fine, this is the "U-ma-ne." Upon this earth a new blanket, formerly a robe, is spread. The blanket or robe must not belong to a woman. The buffalo head is placed in the centre of the blanket and one side of the head painted blue, and the other red. Upon the blue side tufts of white swan's down are tied to the hair of the head. Sometimes small eagle feathers are substituted and very rarely the large feathers. Upon the red side, tufts of down colored red are similarly tied. These decorations look like a "woman's sun-bonnet," as they cover the head and fall to the shoulders.

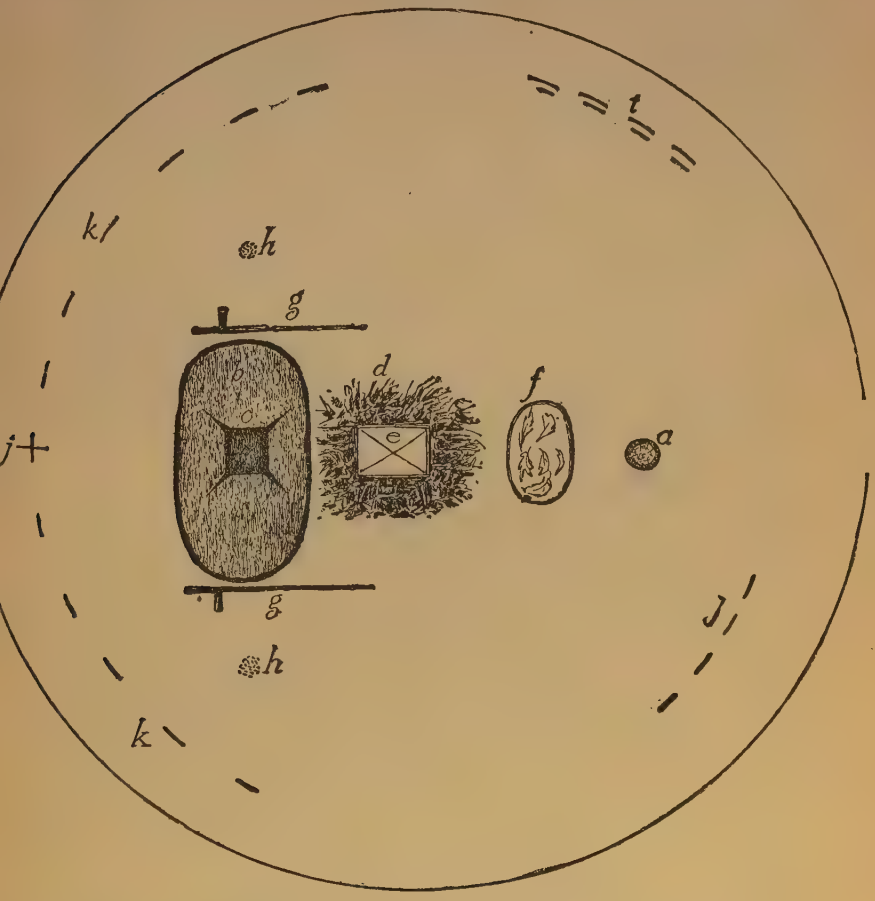
The pipe is only filled and presented to the head. The feast kettle is hung over the fire. When all is in readiness the man who prepared the head thus addresses it.

"Grandfather! Venerable man! Your children have made this feast for you. May the food thus taken cause them to live, and bring them good fortune."

An Indian of remarkable intelligence, whose father before him had been a priest of the higher class, explained that in some religious festivals the buffalo and the earth were spoken of as one and so regarded. "Therefore if any one should revile or ridicule the buffalo ever so softly the earth would hear and tell the buffalo and he would kill the men!" He also confirmed the explanations given me by many Indians in different localities and tribes concerning the reason for mellowing the earth. He said: "We believe the real power of the earth to reside in the freshly exposed soil, so we cut off the sod in preparing it for religious ceremonies, that we may reach this real power and derive benefit from it."

who were leaders and performed especial acts. A pole which had been cut by a relative of the young man (and for the honor of

FIG. 1.



Arrangement within the tent in the Elk Mystery.

doing this act valuable articles had been given away by him) was brought and the youth hung upon it offerings of calico and tied on a few reeds, each one having fastened to it small knot-like bunches of tobacco rolled in cloth.[5] The pole (fig. 1, *a*) was set up in the

[5] Poles having offerings of calico tied on them are always raised when formal prayers are made. The fluttering of the cloth is supposed to attract attention and thus the appeal may be heard. Spirits are regarded as very sensitive to any artificial disturbance of the atmosphere causing a breeze. In most of the preparatory ceremonies the person most closely interested is forbidden to shake his garments, or a robe, or move his arms

tent about five feet back, in a line with the door. A few feet behind the centre of the tent an oval (fig. 1, *b*) was cleared of sods and the earth made mellow or fine; in the midst of this, "u-ma-ne,"[6] as the Dakotas name it, the symbol for the four winds and the earth (fig. 1, *c*) was hollowed out and a coal dropped in the centre of the figure over which sweet grass was laid to smoulder. Over the place in the tent usually occupied by the fire, sprays of *Artemisia ludoviciana* were spread like a mat (fig. 1, *d*) upon which was placed a square looking-glass (fig. 1, *e*) on which lines made of fine dark earth extended from corner to corner, making a cross. Between this and the pole was set the sacred dish[7] containing water (fig. 1, *f*) and a few leaves having a medicinal property. Two pipes (fig. 1, *g*) were passed through the smoke, then lit and ceremoniously used and laid beside the "u-ma-ne," the stems toward the east, and offerings of food (fig. 2, *h*) put near the bowls. Four young women (fig. 1, *i*) dressed in green[8] were seated on the right a little within the entrance. They were to assist in singing and carrying the pipes in the long out-door dance.

violently, run, or talk in a loud voice, because of the spirits being thus troubled and affected. Among oriental nations fluttering articles are set up in religious ceremonies from the gayly embroided pennon, to the unsevered shavings on the rude Ainо "praying stick." Among the tents of the Dakotas one may see poles with bits of cloth hanging from their tops, leaning up against the log cabins, thrust between the smoke flaps of the tent, or stuck in the ground beside the lodge, showing that some one is sick or in trouble and is thus seeking help and a blessing. In great distress several poles may be raised.

[6] The mellowed earth space, "U-ma-ne," in Dakota, and called by some peculiar name in other tribes, has never been absent from any religious exercise I have yet seen or learned of from the Indians. It represents the unappropriated life or power of the earth, hence man may obtain it. The square or oblong, with the four lines standing out, is invariably interpreted to mean the earth or land with four winds standing toward it. The cross, whether diagonal or upright, always symbolizes the four winds or four quarters. An Indian explained the looking-glass by its reflecting property to stand for th · light; and the sign of the four quarters crossed on it, with the lines of earth was to show that the light was everywhere over the land.

[7] A wooden dish, often of peculiar form, is kept for religious ceremonies. There are traditions of red vessels, "long, long ago before our grandfathers' time." I could learn of no pottery dishes thus used, although some of the tribes, as the Omahas, made pottery a generation or two ago. One of the sacred wooden dishes belonging to the Omahas is in the collection of the museum. An Indian said of the water in the dish, "We must have water for our health so we put the water there as a prayer and the leaves were medicine to cure disease."

[8] Green occurs in several ceremonials and in nearly every instance seems to possess a significance connected with fruitfulness. Among the Omahas the ear of corn used to rub upon the arm in asking the blessing of plenty is painted green. The bladder sent when large gifts are expected to be bestowed on the visitor is painted in the same color. The women in green represented female elk. I am informed that among some of the Pueblos it is a sacred color of feminine characteristics.

The acts of preparation, including the painting[9] and masking of the male members, were accompanied by the ritual songs.

In visions there are four colors which appear. One of these the youth must see, and afterward paint himself with the color when performing the rites connected with his vision. The four colors are spoken of as, "the white cloud," "the red cloud," "the blue cloud," "the yellow cloud."[10] On the occasion when I was present, the young man who was acting out his vision had seen the "yellow cloud" and his body was therefore painted yellow. He (fig. 1, *j*), and all the other men members of the Elk Society (fig. 1, *k*) seated on either side of him were naked, except a close breech cloth, and decorated according to the colors seen in their respective visions. They wore masks resembling the heads of elk. These masks were made by bending willow branches so as to form a framework, with a straight bar across the top of the head, two side pieces passing down by the ears and fastened to withes which circled both forehead and neck. Antlers, resembling those of the elk, were ingeniously shaped from boughs and covered with rolled bands of cloth; these were fastened to the side pieces. Over the frame a thin cloth was stretched, having holes to let the antlers through and enclosing the head of the man like a bag. The cloth masks were variously painted and decorated. One had a small circular looking glass like a single eye fastened on the forehead, others had two glasses in place of eyes; nearly all had something fastened on them which would catch and reflect the light.

When the members were masked and painted they presented a strangely grotesque appearance, but there was nothing ludicrous. Upon the back of one man a circle was drawn in blue paint, in

[9] The putting on of paint is always a part of Indian ceremonial, religious or social. It forms a part of the formal approach in religious ritual so essential to the Indian mode of thought. The dead are painted that the person may meet the spirits in proper guise. It is also regarded as an offering of prayer.

[10] White, blue, red and yellow, possess different meanings yet are not very clearly determined by all tribes. Among the Dakotas the following interpretation prevails. White is seldom used artificially, when it occurs in nature, as the white buffalo, deer, rabbit, etc., and on the plumage of birds it indicates consecration. The sacred feathers and down are always white, the former being taken from the under part of the eagle's wing and are soft and downy. This meaning of white holds good with the Omahas, Poncas, etc., and seems to have a wide application among the Indians. Blue represents the winds, the west, the moon, the water, the thunder and sometimes the lightning. (I have learned from Mr. Frank Cushing, that blue is also the typical color for the west among the Zuñi Indians.) Red indicates the sun, the stone, the forms of animal and vegetable life, the procreative force. Yellow represents sunlight as distinguished from the fructifying power of the sun.

the centre of which a splinter of wood was passed through a stitch of cuticle: from the wood dangled an eagle feather fastened by winding a loop of sinew like the figure 8 about the splinter. This I was told represented a special prayer that any wounds the man might receive should not bring death.[11]

Friends and spectators were seated just within the entrance, on the left (fig. 1, *l*).

The morning was consumed with these ceremonies. About 2 P. M. the pipes were handed to two of the young women, and they and the other two passed out of the tent and began walking slowly up the valley toward the north, the two with the pipes preceding and holding the stem forward and upward.

The women had not gone far when the men one by one emerged from the tent, each one taking attitudes indicating caution, as the elk might step forth from cover and look about him. In this manner imitating the elk, the men followed at a distance the girls who were carrying the pipes. Sometimes the elks would leap, crouch, trample the dirt, or glide noiselessly along. Two or three of the men carried a hoop in their hands, one hoop containing a square from which depended a fringe of rattling deer hoofs. The neophyte held one having a circular mirror, fastened by four cords, from which he cast a reflection of the sun from time to time upon the ground, or held up the hoop and flashed the mirror.

This singular company made their way slowly, often doubling on their tracks until they had gone three or four miles up the valley, following in a general way a prettily wooded creek. The girls were always in the advance, their black hair and long braids shining in the sun. I did not once see them turn to look at the dancers who were following with wild, yet not unseemly antics.[12]

[11] The splint represented the wound, the eagle feather showed it to be honorable, the line of blue circling it was the four winds, which blow away disease and baneful influences, so that a wound thus encompassed could work no harm. The following, from a Japanese Shinto prayer addressed to the god and goddess of the winds, is almost identical with similar Indian petitions: "Bless me by . . . blowing off and clearing away the calamities which evil gods might inflict by causing me to live long like the hard and lasting rock."

[12] In all Indian ceremonials there are portions where a sort of ritual of steps is observed. These differ somewhat from the regular dances with figures, postures, and placing of the feet, all of which are more or less arbitrary. There is a fixed form for everything the Indian does and in the elk mystery are certain procedures which, although difficult for the white spectator to define and discriminate clearly, are to the Indian precise and essential. The whole movement of this long dance with its queer posturings and actions was not without untrammelled grace and spirited action that produced a lasting impression.

As the dancers passed on, the men, women and children from the village flocked after the "elks," but never approached within fifty feet of them. The silence and intentness of the actors and spectators added a seemingly incongruous element which arrested the attention of the looker-on, and brought the conviction that the spectacle was not in sport but of a serious character. The ground passed over in going and returning, taken in a direct line, could not have been far from six or seven miles, though this represents but a small part of the distance travelled. Over four hours were passed in this tortuous dance, if it can be so called. As the company neared the tent from which they had started a venerable Indian drew my attention to the east, and there I saw pencilled against the sky a portion of a rainbow. Every one was soon looking at the favoring sign and all faces were bright at the promised blessing. While I expressed my sympathy with the people, I could not help glancing about to find the signs of rain, for there had been none all day, and now the buttes were golden in the setting sun, and the fleecy clouds which floated here and there were pearly and light. Without stopping to think, it was easy to share the popular feeling that it was a miraculous indication as an Indian friend said to me: "That rainbow has come directly from the god to show that our friend has faithfully acted his vision, and that his vision was true and his prayers accepted. Our friend has done right! The god has seen it and has told us so!"[13]

When the girls reached the tent the pipes were returned to their places beside the "u-ma-ne." The elk members entered one at a time and resumed their former places. Last of all the youth passed in, acting to the end as an elk retiring to a place of quiet safety. The man took his seat in the middle of the group of his associates. After a silence all the men unmasked and gathered their

[13] Hundreds of the Indians were out watching the dancers. The young men standing in groups, their white canvas blankets drawn over their heads and faces, leaving but one eye exposed. Older men stood bareheaded, looking on with gravity. Occasionally one of the bystanders would dart ahead so as to come abreast with the dancers but still keeping forty or fifty feet off to one side; then he would suddenly squat on the ground where the soil was exposed and make symbols in the loose earth, sometimes using saliva to insure consistency. No one observed or molested the man in any way. I saw two or three such episodes while the dancers were out. I could learn little of their meaning except that the man was working his mystery. When the procession, on returning, neared the village, the old men and women came out from their lodges to look at it and would lift up their wrinkled arms making the sign of thanks as the dancers passed. The religious devotion of the elk members evidently affected a wide circle and the appearance of the rainbow seemed to rouse the entire people and awaken a religious fervor.

blankets about their dripping bodies. Friends looked in, and in the course of half an hour the company moved off to enjoy the well-earned feast. The tent was soon lowered,[14] and night closing over the scene left it in the past.

[14] Articles which have been consecrated, as the pole and its offerings, the Artemisia, the earth, etc., are not removed but are left for the elements to disperse. No one "clears up" after an Indian festival, but the ubiquitous small boy generally avails himself of any handy article and no one seems to mind his action or look upon it as sacrilegious: evidently he is not yet within the pale of observances.

THE RELIGIOUS CEREMONY OF THE FOUR WINDS OR QUARTERS, AS OBSERVED BY THE SANTEE SIOUX.

By Alice C. Fletcher.

Among the Santee (Sioux) Indians the Four Winds[1] are symbolized by the raven and a small black stone, less than a hen's egg in size. During the religious fasts which every young man must hold with more or less frequency, he may see in his vision one of these symbols, and it will then become his duty to seek the natural counterpart. If he sees the black stone, which is difficult to find, considerable time may elapse between the vision and the securing of the desired object, by which his vision is to be verified.[2] The quest for the raven or the stone is religious in its

[1] An intelligent Santee Indian said to me: "The worship of the Four Winds is the most difficult to explain for it is the most complicated. The Four Winds are sent by 'the Something that moves.' There is a 'Something that moves' at each of the 'Four Directions or Quarters.' The Winds are, therefore, the messengers or exponents of the powers which remain at the Four Quarters. These Four Quarters are spoken of as upholding the earth, and are connected with thunder and lightning as well as the wind. Life, both in its continuity and its vicissitudes, is connected with this religious form of an idea which perhaps belongs to the primary and esoteric class. In every religious festival I have seen, or been told of by the Indians, the Four Winds or Quarters are recognized by signs drawn on skins, on the earth or on some of the sacred articles.

My informant went on to tell me that "the spirits of the Four Winds were not one, but twelve, and they are spoken of as twelve. In an Ojibway myth given by Schoolcraft and called "Lone Lightning" there are twelve arrows used. In a Shawnee myth twelve sisters descend from the sky upon the circle of cleaned ground and become instrumental in the creation of animals and birds. Other myths connect the number twelve with the Four Winds or Quarters, and their cognates thunder and lightning, and the powers belonging to them. The universality of the worship of the Four Quarters is well known. Some forms of the worship, as that of the Hebrews, remind one of the Indian mode of expression when shaking the bunches of herbs to each of the Four Quarters as the procession moved during the feast of tabernacles.

When a people have arrived at the art of carving in stone and building edifices, figures expressive of the Four Quarters are often to be found. As among the Japanese, where these symbols of an earlier worship are placed in the position of supporting and sustaining the symbols of the more modern Buddhism, these figures are described as having claws upon their feet, their garments as if blown by the winds, their heads surrounded with flames, and two projecting front teeth. By the last mentioned peculiarity, one is reminded of the representation of the human face so frequently met with in Central and South America.

[2] It is not enough to have had the vision: the man must seek for the natural object which was represented before the true benefits of the vision can be received. This rule holds good among all the religious societies and various tribes I have personally met and studied.

character, entered upon with supplication, and the favor of the gods is manifested by a successful issue. When the black stone has been secured, the following rites are observed.

The finder of the stone must first procure a quantity of down from wild geese, hunting and killing the birds himself. The down thus procured is colored with red ochre,[3] and put into a buck-skin bag made for this purpose, having thongs to tie it up tight; into this receptacle the stone is dropped and kept carefully laid away in the pack containing the gala dress, pipe, bag and other articles used by the man on occasions of ceremony. Two deer or elk skins are dried in a frame, the hair being removed. These skins are to serve as drums.[4] Two other deer skins are carefully dressed for robes. The edges of the robes are trimmed with tufts of down, a line of large eagle feathers is fastened from shoulder to shoulder, and an eagle feather hung from each leg flap. In the centre of each robe, a disk about six inches in diameter is painted with blue earth, and while the paint is still moist, down, colored with red ochre, is made to adhere. Just below the row of eagle feathers, four zigzag lines are painted in blue.[5] These ornamented skins are prepared previously to the festival, except the painting, which is done at the festival and forms a part of the ceremony.

A new tent is set up at a little distance from the man's lodge, the door facing the east. Invitations are then sent to all the men who have seen the raven or the stone in their visions to come and partake of a feast and join in a festival, when the finder of the Stone shall proclaim his religious emblem and association.[6]

[3] Down colored with red ochre occurs in many religious ceremonies and among many tribes. It is significant that in the Dakota, Omaha, as well as other tongues, the stones used in sacred ceremonies, the down, red ochre, etc., are classed as animate substances, being thus raised by their importance in religious rites out of the inanimate gender to the animate, thereby indicating an interesting step towards anthropomorphism.

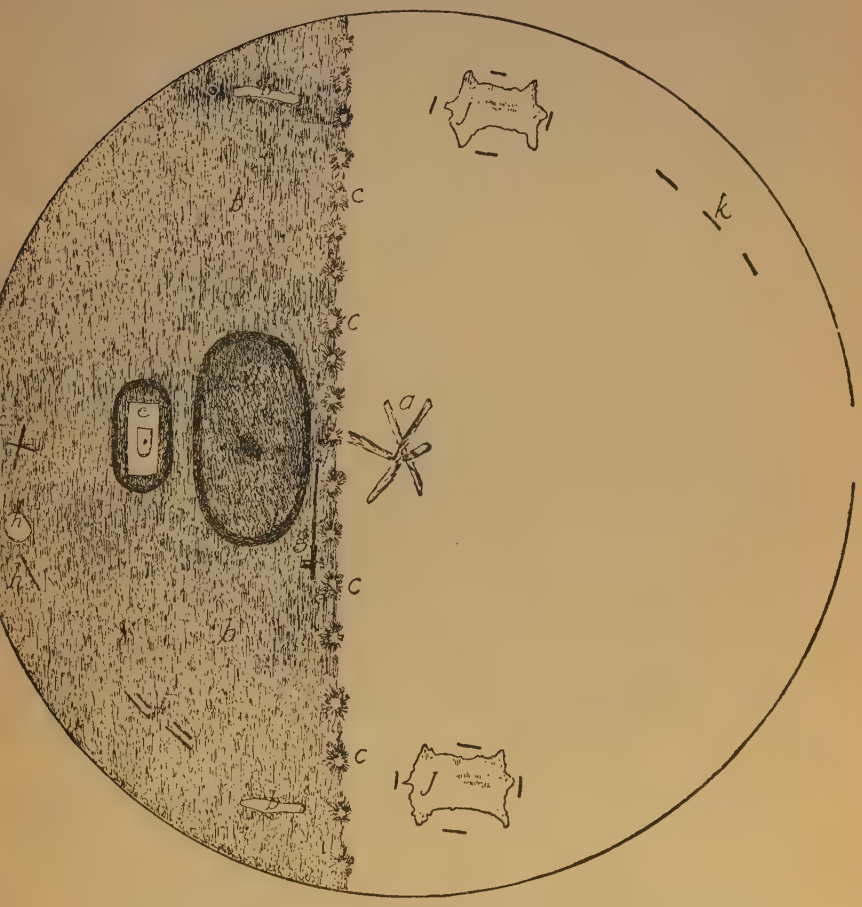
[4] The drum used by the Ogallalas at the sun dance was a similarly dried skin.

[5] Blue is used to typify the west, thunder, lightning, winds, and is one of the four principal colors. Blue is the color mainly used in tattooing, as the blue mark put upon the forehead of girls in accordance with certain duties fulfilled by the father. Among the Omahas those men, who by their visions belong to the Thunder societies, paint themselves with blue spots on the face, and some have the circle with four radiating lines indicating the four winds or quarters pictured upon their breast. Myths associate this color with the four quarters, winds, thunder, lightning, and rain or water.

[6] These religious symbols are the most sacred personal possessions; they are rarely inherited, being generally buried with the person. In a few cases, when a man has possessed peculiar powers of prophecy and supernatural force, his son, if he inherits

A fire (fig. 1, *a*) is built in the centre of the tent; a little back of it a line is drawn across the earth floor and all the sod removed between this line and the back of the tent as represented

Fig. 1.



Arrangement within the tent during the ceremony of the Four Winds.

by the shaded portion of the diagram (fig. 1, *b*). Tufts of down (fig. 1, *c*) are thrust in the ground along the edge where the sod is cut off, thus setting apart the consecrated space. A foot

his father's talent, would sometimes inherit the sacred symbol of his progenitor and carry it with his own, in his personal bag. In every instance which I have been able to authenticate, these more recondite gifts have been accompanied by a sort of medical skill.

or so back of this demarcation of down, in a line with the fire and the door of the tent, an oblong is drawn (fig. 1, *d*) and within it the ground is carefully mellowed.[7] In the centre of this oblong some coals are laid and on them sweet grass or cedar[8] dropped to give forth an aromatic smoke. Behind this oblong, a foot or more, an oval is drawn, and within it the ground similarly mellowed. On the ground, thus prepared, a new blanket is spread and upon it the bag containing the stone is laid (fig. 1, *e*). Behind this sits the finder of the stone (fig. 1, *f*). The pipe, set apart for this festival by the finder of the stone, is filled with proper ceremony, and after being passed through the smoke of the sweet grass is laid beside the mellowed earth (fig. 1, *g*). A small drum is placed at the back of the tent on the right of the centre, and a "wakan" man sits beside it (fig. 1, *h*, *h*). Two girls (fig. 1, *i*) who are to sing during the ceremony, sit to the right of the drum.[9] The two dried skins (fig. 1, *j*) are placed just outside the line of down, one on the south and the other on the north side of the tent, and by each skin, four young men sit down in places corresponding to the four quarters. On the north side of the tent, between the hide and the door sit three young men (fig. 1, *k*) having rattles or bells. After these are placed, the two ornamented robes are brought in and the blue disks and the four zigzag lines painted on them. These robes are then hung upon poles (fig. 1, *l*, by mistake marked *b*, *b* in the diagram on the two white oblong spaces) inside the line of down, one on the north, the other on the south side. The bag is then untied and the stone enveloped in down held over the sweet scented smoke, after which consecration this stone is laid upon the outside of its bag on the blanket. The pipe is now extended toward the stone and then replaced beside the mellowed earth.

[7] In this ceremony the ground seems doubly prepared. Not only is the sod removed from nearly one-half the tent where all the sacred articles are to be laid; but beneath this incense fire and the blanket or skin, on which the bag and black stone are laid, the ground is more carefully mellowed and set apart. The universality of this mellowing of the earth, its appearance in the myths and its connection with every religious ceremony render it an important object of study as to its origin and real meaning.

[8] Cedar is regarded as sacred and assigned a sacred office, not only in the religious ceremonies but in the myths. Nor does the sacredness of the cedar seem to be confined to the northern Indians. Among the Muskogees it was one of the plants given by the men who came from the four quarters to instruct the people in their early days. In this myth the cedar is not only counted as one of the sacred gifts but connected with the four quarters.

[9] The place of the woman in the tent and in ceremonies is to the right of the man. The position is significant in many ways, and indicates among other things the absence of the unifying idea which lies at the base of monogamic marriage.

After this ceremony, the ritual chant is sung by the finder of the stone, who accompanies himself with a deer-hoof rattle. The "wakan" man also chants, sounding the drum, as do the eight young men who beat the dried skins, and the two girls, thus making twelve singers, while the three young men by the door accent the time with their rattles or bells. At the close of the chant the finder of the stone puts a whistle made of cane to his lips making a shrill call. After a silence, the chant is repeated by the singers, and again at its close the whistle is blown. Before chanting the ritual a third time, the singers all give the victory shout and then proceed with the chant; at the close the whistle is sounded. During the fourth chanting of the ritual, the finder of the stone is supposed to hear from the west a voice. This voice proceeds from "the Something that moves" the west wind or the western quarter. The finder of the stone makes answer saying, "Father?" At the close of the chant he announces that "the Something that moves is coming." Ashes are strewn over the fire, for "the Something that moves" cannot approach over an open fire. The finder of the stone is now supposed to hear the following inquiry, put to him by the approaching deity: "Why have you called me?" The man makes answer: "I have called asking for protection from sickness, from enemies, for success in hunting;" "then he speaks of any trouble that lies on his heart." In answer to these supplications, the man believes that he hears that he is to be held in safety for a certain length of time, one, two or more winters, according as he hears the god say. During this period of safety he may sing gently to "the Something that moves" and make feasts and give away articles in honor of this god, but must not call upon him until the term specified has expired, and then he may hold another festival and call on the god and obtain a new term of protection. During the interim the man must fully believe that this god is present with and caring for his faithful follower,[10] who on his part must treasure the sacred symbol of the

[10] The implicit faith in the careful performance of rituals should never be lost sight of, as a distinctive characteristic of Indian religious ceremonials and as exercising a marked influence on the thought and action of the people. A woman whom I knew, and who was suffering from a nervous affection which made it almost impossible to walk, was hopeless of treatment, and her husband, also, because she had failed once in some of the minutiæ of the observances at a religious festival, and she was thus consequently punished. Every ill of life is supposed to be traceable to some such sin of omission, the people reasoning from the analogy of the relation of one person to another, or one tribe to another, where breaches of etiquette might lead to disastrous results.

god always carrying it in time of trouble and danger, and on occasions of religious festivities.[11] After the supposed colloquy between the god and the man is ended, and the stone is put into its bag and this tied up, the pipe is lit, passed and smoked, and all those present being of one religious society[12] partake of a feast, at which time many gifts are distributed by the finder of the stone.

Should this man have a child it may receive a name, sacred in character, at a similar festival, where every preparation and ceremony as herein described is repeated. The child is brought in just before the chants are sung. The "wakan" man calls to "the Something that moves," and as he calls he mentions a name, as for instance, saying "Ta-teo comes" (Ta-teo or Big Nation was given to a child on such an occasion). This name, which is supposed to be recognized and acknowledged by the god, since he comes to its call, is to be the name of the child, and he is thus placed under the protection of the god who has answered it. When the "wakan" man says "Ta-teo comes," "the Something that moves" enters the tent and is supposed to speak as for the child, saying to the "wakan" man: "Father, what do you wish?" To which the man replies: "Child,[13] we ask you to have care of this boy, to keep him from sickness and ill-fortune. We have given this feast for you, behold, the skins and the offerings we have made in your honor." After these words have been spoken, the goods are given away to the poor and all the articles disposed of, and the child is received under the protection of his father's

[11] To disbelieve in the potency of the symbol would be like treachery to a friend, and by this means evil would befall the man who doubted his vision.

[12] All men are open to the visitation of visions, if they properly seek them, though exceptions are known where no amount of fasting would bring about the desired effect. These religious societies, therefore, draw their membership from all the gentes and are small private circles within the great religious circle of the tribe. When the annual religious festivals are held, all persons must take part, and as far as I have been able to learn none of these religious societies at that time take any precedence, or as societies perform especial religious services. The old religious forms and rituals are often preserved in these societies after the tribal religious ceremonies, from untoward circumstances, have fallen into disuse.

[13] It is well known that Indian social etiquette forbids the mention of a person's name in the person's presence. In a few of the most sacred rites or on occasions of grave solemnity this rule has an exception, and the man or men may be called by name. At other times, as during the tribal festivals, when the criers summon a man his son's name is called and the father, hearing the sound, responds.

god and bears henceforth the name pronounced.[14] A feast closes the festivities.

[14] It frequently happens that an Indian man has several names. First, he has the name given him by his father or near relatives, his home name, or else the name given in some such ceremony as described in the text. Second, he has the name assumed by him when he first goes forth to prove his prowess and manly qualities, so that he may be accounted as worthy to be enrolled among those who shall protect the tribe from danger and provide for the wants of the family. Third, he may have a name or names which have been given him by others to commemorate a brave deed or a foolish act, a personal peculiarity or some queer adventure.

The name given by parents or relatives generally belongs to the gens in which the child is born, and the name given religiously may refer also to the gens or may be significant of the religious society of the father. A name implies relationship, and consequently protection; favor and influence are claimed from the source of the name, whether this be the gens or the vision. A name, therefore, shows the affiliation of the individual; it grades him, so to speak, and he is apt to lean upon its implied power; consequently a man does not like a bad nickname, it handicaps him in his own esteem. The sacred import of a name in the mind of the Indian is indicated in that part of the ceremony where "the Something that moves" seems to overshadow and enclose the child and addresses the "wakan" man as "father." The "wakan" man replies calling the god "child," at the same time invoking the supernatural protection and care for the boy, as he lays at the feet of the messenger of the Unseen Power, the offerings of gifts and the honor of the feast. The personal name among Indians, therefore, indicates the protecting presence of a deity and must, therefore, partake of the ceremonial character of the Indian's religion.

THE SHADOW OR GHOST LODGE: A CEREMONY OF THE OGALLALA SIOUX.

By Alice C. Fletcher.

The ceremonies here described were witnessed among the Ogallala Indians in 1882. The old men of the tribe told me that formerly a period of two years was necessary to fulfil the requirements of this rite. Now six months or a year will suffice.

These Indians entertain the belief that after death the soul will linger near the body so long as it is preserved or any part of it kept intact, particularly if not exposed to the air. The clothing too, which was needful to the comfort of the body, partakes of the individuality of the person and the spirit will linger about these articles. On account of this belief the personal belongings are always placed with the body of the dead, and an Indian will never consciously wear any article of clothing which has been used by one who is deceased. This idea that the soul lingers near any part of the body which is carefully preserved is closely connected with the Shadow or Ghost Lodge. The name was explained as referring to the soul being like a shadow continually with the body and at death gradually fading away.

A ghost lodge is usually kept for a child. The rites are initiated by the father who is the principal actor and responsible person in all the ceremonies. It is creditable to have kept a lodge of this character, and the public consideration seems to arise from the general respect paid to any especial honoring of the dead, as giving proof of family faithfulness and affection, as well as the accumulation of wealth by the father, and the characteristic disposition of it. It is by such deeds that a man gains tribal distinction, and favors his advance to public office. These preferments are won from the tribe by an Indian proving his devotion to the religious ceremonies and traditions of his fathers, by a faithful fulfilment of certain rites, as well as by showing prowess in action and wisdom in counsel.

If, on the death of a child, the father desires to keep a ghost lodge, he speedily sends for a holy or "wakan-man," who on his

arrival at the father's tent, takes a pipe, which is handed him, and fills it chanting a ritual suitable to the occasion. One of the criers of the camp is called and he receives the pipe and starts for the tent of a man who has successfully kept a ghost lodge. As the crier enters the tent he says in an intoning voice:[1]

"The one who sends me wishes to keep a ghost lodge," and offers the pipe. The man addressed accepts the pipe, lights it, and smokes it in silence. When it is finished he goes to the father's tent where the child lies dead.

After entering the tent and observing a brief silence the man sent for walks over to where the child lies dressed in its best clothing, its face painted red, and taking a knife cuts off a lock of hair just above the forehead. He then hands the hair to the mother, who takes it, wraps it in a piece of new cloth, and lays it away, where it remains undisturbed for four days. Skin was formerly used in place of cloth.

Four yards of red cloth are divided into two parts. One part is carried out beyond the camp, to an elevation if possible, and buried in a hole about three feet deep. This is an offering to the earth, and the chanted prayer asks that the life, or power in the earth, will help the father in keeping successfully all the requirements of the ghost lodge. The other part of the red cloth is lifted and offered to the buffalo, with a prayer that good may be granted to the father during the period of the lodge-keeping. After this ceremony the cloth is cut into eight strips and given to eight men who have successfully kept a ghost lodge. This is a request for their good will and help. Formerly a deerskin, well tanned and painted red, was thus offered. These ceremonies are performed by the wakan-man and the man who cut the child's hair.

The dancing society to which the father belongs present him with horses, and friends make gifts; these are all treasured against the day of final ceremonies. After these preliminaries the body of the child is put away with the usual burial rites.

The duties of the father begin at the time the hair is cut and continue until the closing ceremonies, six months or a year afterwards. During this interval he cannot eat dog meat or any flesh

[1] The prayers and rituals are chanted or intoned. When the latter is used the breath is audibly inhaled, something as it is during ceremonial smoking. All ceremonial addresses and announcements by the criers are given in a key differing from the natural tone of voice. This is the conventional manner, and is often unconsciously adopted on ordinary occasions.

scraped from the skin or hide of an animal. He cannot cut open the head of any animal to get the brains, strike or break any ribs or do any butchering. He cannot take a gun, pistol, arrows, or any weapon in his hand. He cannot run, go in swimming, make any violent movement, shake a blanket, his clothing, or in any way disturb the air. No one must pass before him or touch him, and to prevent this disaster a coal of fire is always kept about two feet in front of him as he sits in the tent. Although he remains with his family he must live apart from his wife, and on no account take a child in his arms, for if he should so forget himself the child would surely die.[2]

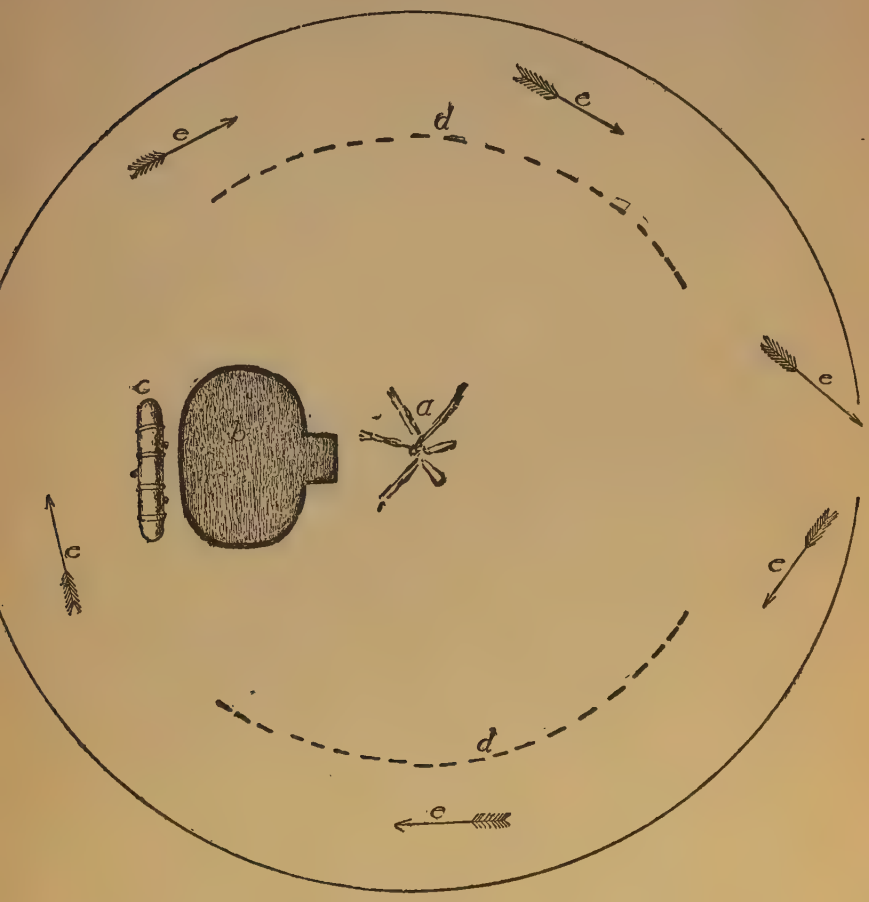
During the four days the hair is laid away the mother and sisters, or the near female relatives, make a small buckskin bag in which the hair is to be placed. A pack of the same material or cloth is prepared, having buckskin thongs with which to tie it. A new tent is pitched not far from the father's tent, the opening toward the east. Formerly this tent for the ghost lodge was set a little within the tribal circle or open space, out from the line of living tents.

On the fourth day the wakan-man, and the man who had cut the hair from the child, repair to the tent set apart for the lodge, and make up the pack into a roll about six inches in diameter and two feet long, enclosing the buckskin bag containing the lock of hair cut from the child, and the pipe which had been filled by the wakan-man and sent out by the father. To these are added any other articles which the parents may choose to contribute. Three crotched sticks had been cut by a male relative, and for the honor of doing this he had given away the value of a horse. On these sticks the pack is tied. A fire (fig. 1, *a*) is made in the centre of the tent, back of which an oval is drawn upon the ground about three feet

[2] An Indian who was keeping a ghost lodge attended the sun dance. One day while there he forgot the duties of the ghost lodge and suffered his six year old daughter to approach him, and took her in his arms. Too late he recalled the penalty he had incurred. A fortnight later when I entered his tent, where he was sitting with the coal of fire before him, I saw the little girl lying sick unto death, on the opposite side of the fire. Bending over the child it was evident that she was beyond any medical aid. Her father accepted her fate as a punishment he had merited. Her mother was equally hopeless and sat without, working on moccasins to be given away on the approaching final ceremonies, while her brothers and sisters were racing over the hills pictures of careless health. It was a striking scene. To every inquiry I made as to the cause of the child's illness, cold, fever, or the like, the invariable answer given by relative or acquaintance was: "Her father forgot and took her in his arms." It was impossible to present to the people any natural cause for the child's illness, from that which was so clearly another evidence, supernaturally given, of the sanctity and power of their religious ceremonies. Next day the child died, leaving her parents full sore at heart.

in diameter, having an elongated opening at the east (fig. 1, *b*). The sod is then removed from within the figure and the earth thus exposed is mellowed and made fine. Down from the wild goose,

FIG. 1.



Arrangement of the ghost lodge at the beginning of the ceremony.

colored with red ochre, is placed along the outline of the figure.[3]

[3] Here again is met the U-ma-ne, which occurs in every festival so far met with, as also the down of the wild goose, and ochre. The constant recurrence of certain symbols and articles used in religious ceremonies indicates lines for the careful investigation of students.

Behind the oval figure the three crotched sticks are set up having the pack fastened to them where they come together (fig. 1, *c*). A bowl and a wooden spoon are fastened to the outside of the pack.

No woman but the mother of the child is allowed to enter this tent. She has charge of the pack, but can only pass into the tent when performing some duty incident to the lodge-keeping. When entering the tent she turns to the left and makes the entire circle, always going behind the pack and passing out by the right. This mode of entering and leaving is observed by all who enter the tent, and is indicated by the arrows in the diagram (fig. 1, *e*.) No one may pass between the pack and the symbol drawn on the ground, or between that and the fire.[4] Nor can any one turn back on his passage round the tent, for one must always move in a continuous circle from left to right. On clear sunny days, when the wind does not blow, the mother carries the crotched sticks, with the pack tied to them, outside the tent, setting them up about four or five feet in front of the entrance. As the sun declines she returns the pack to its place in the tent. When it thunders, or if a gun should be fired, or any unwonted noise should be heard, she must hasten to cover the pack. If, when the pack is out of doors, a sudden wind should rise, the mother must instantly take the pack into the tent. Thus her constant care is necessary.

Every day the father of the child enters the ghost lodge tent and the mother, soon after, sets kettles of food inside the tent door. The father loosens the dish from the pack, a small quantity of the food is placed in it, and the dish set down near the pack. The father then takes a bit of the food from the dish with his fingers and, lifting it, says: "We offer this food that you may help us, that we may escape ill fortune. We ask you to help us to avoid any sickness or misfortune that may lie in our path."[5] The offering is then dropped upon the mellowed earth and buried in it. During this ceremony persons of the male sex may be present; their position on the north and south side of the lodge is indicated on the diagram by the letter *d*. It is usual for orphans, the aged, or any one in need of food, to repair to the ghost lodge to

[4] The spaces here mentioned are always considered as consecrated or set apart in every ceremony I have witnessed or learned about, and this applies to many tribes.

[5] This is the usual form of asking a blessing. This ceremony takes place at every feast, dance or ritual observance where food is eaten. The father does not address the ghost pack, but the deity or life of the animal food.

share in this daily feast given by the father as a religious hospitality.

In the tent certain rules must be observed; the mode of entering, moving about and leaving have been already mentioned. No one may blow the fire with his mouth. When it needs to be livened one may gently fan it with the wing of a bird, but in no other way: no one may spit toward the centre of the tent, but if he needs to cast anything from his mouth, he must turn his head and throw the saliva behind him. No tales of fighting, nor any quarrelsome words, nor any subject which is "bad" must be spoken in a ghost lodge. Quietness and friendliness must pervade the tent.

If at any time during the period of keeping the lodge the father should by accident hear of any violent words or deeds, he must at once perform certain rites which will avert the evil consequences to him and his family. He must take a few coals of fire, and lay on them a bunch of sweet grass, or sprays of cedar. As the smoke rises he must crouch over the coals bringing his blanket close about his body, drawing it over his head and face so as completely to shut him in with the smoke; sitting thus while the aromatic fumes circle his entire person, he thinks of the duty of carefully fulfilling the ritual of the religious ceremony and by his faithfulness arresting disaster and securing good fortune for his kin.

During the months occupied with these duties the man can do little more than fulfil them. As he is debarred from hunting and providing food and raiment, his needs are supplied by his kindred. It is not enough that his avocations should be peaceful but it is his duty to relinquish any hard feeling he has had and forget old injuries. The keeping of a ghost lodge is a signal of peace and cancels all grudges between parties. The father may not smoke with any one lest he should consort with a man who was at enmity with some other person. The Indians in explanation pointed out that it was for the purpose of enforcing peace in a man's actions and thoughts that he was forbidden to take weapons in his hand; and the coal of fire placed before him while sitting in his tent was indicative of his setting himself apart for this religious duty, "the coal being like a partition between the father and all the world."

During these intermediate months, the family are busily employed making eagle war bonnets, embroidering moccasins, tobacco pouches, tobacco boards, fashioning pipes and ornamenting clothing and gathering together a large amount of possessions to be

given away at the closing ceremonies. After a ghost lodge a family are often left in poverty, but with the Indians it is not accumulation and hoarding, but the record of that which a man has given away which entitles him to greatness and influence.

Any one of the same gens[6] as the father, who had lost a child, after the ghost lodge had been inaugurated and who desired to join in the ceremony, could prepare a similar pack, and tie it to the one in the ghost lodge. Each family thus represented must contribute its quota of gifts at the final day.

As that time draws near word is sent abroad, inviting members of other gens, and even of other tribes, to be present and participate in the feast. Four days the crier proclaims the opening of the packs and distribution of the gifts, and during these days the families are busy preparing for the coming feast. A man who has successfully kept a ghost lodge is invited to take charge of the proceedings. For this service he receives large presents from the parents represented in the lodge. To give an idea of this payment the following list of articles was received by the man having charge of the ghost lodge herein described.

Four garnished buffalo robes embroidered with porcupine quills, four woven sashes, four calico shirts, four pipes, four plugs of tobacco, four hatchets, six pairs of moccasins, six dishes, six tin pans, seven yards of calico (a dress pattern), ten butcher knives, two pairs of leggings, two strings of bells, two curtains (strips of tent cloth used to protect the sleeping place), two comforters (bed quilts), one lariat, one hoe, one bed made of reeds, one steer, two or three ponies.

Among the articles given away, the following were counted.

Thirty-two ponies, one hundred pairs of moccasins, ten shawls, seven buffalo robes, three war bonnets (eagle feathers), eight calico dresses (made up), besides numerous tin pails and cups, knives, coffee pots, tin pans, looking glasses such as the young men wear, embroidered beaded dresses, knife cases, match pockets, bows and arrows, wooden bowls, balls, shinny sticks embroidered with beads, a quantity of dried cherries, squash, pounded meat and other things.

From early morning to well on toward noon the women were

[6] It was only the Indians of one gens or clan who joined in this ghost lodge. Further investigation will prove whether this is always the rule among tribes which hold similar lodges.

engaged carrying these gifts singly, in packs made of raw hide, or in wooden trunks, and placing them at the door of the new tent set up to receive them. On this final day all signs of mourning are put away, for the first time since the death occurred the

FIG. 2.

Arrangement of the tent set up to receive the gifts.

immediate relatives braid their hair, and every one is in gala dress. Over 800 people gathered to the feast, and were scattered over the grass. Forty-two great kettles hung from crotched sticks, the beef soup and dog stew flavored with dried cherries or turnips

sent up fumes of steam. The sticks used to stir these viands were forked, having the end ornamented with beads and ribbons. Young girls were bringing water from the creek, the older ones grinding coffee, and all busy preparing for the great crowd of guests. The abrupt outline of the buttes, dark evergreens marking the gullies, the narrow valley through which flowed the clear rapid creek with its border of shrubs and large graceful trees, the green bottom lands dotted with white tents, while a few were scattered over the hills that rose in terraces to the east, together with the vast throngs of gayly dressed Indians, combined to make a picture full of color, spirit, and a wild beauty all its own, bearing no familiar lines to eastern civilized eyes.

The new tent set up for the reception of the gifts (fig. 2) is placed near the ghost lodge tent, the door facing the east. Near the centre a fire is kindled (fig. 2, *a*), an oval figure drawn on the ground (fig. 2, *b*) similar to that cut on the floor of the ghost lodge. The sod is removed from within the figure, the earth mellowed, four live coals laid on the mellowed earth and sweet grass dropped on them. Outside the figure eight coals are placed, four on each side (fig. 2, *c*), and sweet grass laid on to smoulder.[7] On the north and south side a buffalo chip is set (fig. 2, *d*). Back of the oval figure the sod is removed so as to leave a narrow, oblong figure in the earth on which sprays of Artemisia are spread like a mat (fig. 2, *e*); behind this the presents are arranged in piles (fig. 2, *f*), one pile for each ghost represented in the lodge.[8]

[7] The protective purification and consecration, secured by fire and sweet or aromatic smoke is noticeable throughout this ceremonial, and the number of small fires and their positions seem to indicate a connection with the worship of the four quarters or winds.

[8] The traditions concerning the ghost lodge are as follows: Long ago the Dakotas lived in one village and had seven council fires. When they broke up and parted each division received certain gifts. To these particular Indians were given the pipe and the mystery of the ghost lodge. One version says: Two warriors were returning to the camp, when they were met by a woman who said: "When you return, cause a tent to be pitched within the line of tents, and I will come and tell you what to do in the tent." Although alarmed at being thus accosted, the warriors did as they were directed, and the woman came as she had promised. They entered the tent with her and she then revealed the mystery of the ghost lodge, and gave them a pipe, saying: "When you cease to do in this way I have told you, the people will no longer live." She left the tent and vanished in a cloud. Still another version states, that one day there was a woman, wearing an apron of Artemisia, and wrapped in a buffalo skin having the hair outside and the horns left on. She was holding the head in her left hand and the tail in her right, her left hand crossed over the right, and on her left arm she had a buffalo calf, together with a pipe, the two lying side by side. Four days she tarried with the Dakotas and taught them how to keep the ghost lodge, and left them with the words: "When

After this arrangement is completed a feast is given and while that is in progress the women set a row of crotched sticks in front of the tent, laying on poles to form a framework, on which they spread for exhibition the gifts they had previously made

FIG. 3.

Arrangement of the ghost lodge at the concluding stage of the ceremony.

a mule shall bear a foal then will come the destruction of the earth." Some Indians declare that if the father faithfully performs all the duties and ceremonies of the ghost lodge he thereby averts from his child any punishment or bad consequences which would result from misfortunes or disasters received in this life.

In these accounts it is both curious and instructive to note the traces of the early missionaries interwoven with native tradition.

into piles at the back of the tent. When the feast is concluded, the master of ceremonies distributes these gifts, reserving those which are to be given away in the ghost lodge tent. Visitors and the poor are remembered in the lavish bestowal.

The interior of the ghost lodge (fig. 3) is rearranged in the following manner. The space occupied by the packs is marked off in an oblong, the sod removed and the ground spread with Artemisia (fig. 3, *e*). The figure having the mellowed earth in which the offerings of food have been buried each day, is covered with a red cloth. On the centre is laid a disk of shell (fig. 3, *b*) ; eight live coals, four on each side, are arranged outside the figure, and sweet grass laid on them (fig. 3, *c*). Four buffalo chips are outside of these at the four corners (fig. 3, *d*). The different packs are loosened from the initial pack and each one fastened to sticks about four feet long. There were nine packs, three belonging to young men (fig. 3, *f*), three to boys, two to girls and one to a woman (fig. 3, *g*). The sticks are bound with hide, and an oblong piece of hide, ornamented and having on it a face rudely outlined in paint, is hung in front of each pack. Upon the packs belonging to the young men are fastened eagle feather war bonnets. These effigies are arranged in a semicircle on the south side of the tent, the sticks being thrust in the ground, and the gifts contributed by the relations of the dead person piled about his effigy.

Only men who have kept a ghost lodge are entitled to sit in this tent, and join in smoking the pipe which had been filled with the appropriate ritual. Their position is indicated in fig. 3 by the letter *h*. The man in charge of the ceremonies distributes the gifts which rest about the effigies to the men present. In so doing he is particular so to dispose of the articles as, for instance, to avoid giving an eagle war bonnet to a man who had received one on a previous and similar occasion. Such items are well remembered in an Indian camp, for it is in this way that possessions change hands. The men who receive at this time will save up their treasures and give them away at some future religious or secular festival.

When all the gifts are distributed the packs are opened, the pipes are given to poor men, and the hair once more handed back to the mother who either keeps it, or buries it, and the soul of the child, which has been supposed to linger about the pack, is now free to depart.

The shadows were gathering in the valley and the last glow fad-

ing from the buttes, as the tents fell and the poles were gathered and carried off by their possessors, for not an article used in this strange ceremonial remained in the possession of the parents who had thus paid to the full their tribute of affection for the dead, and proved themselves faithful to the custom of their ancestors. The stars came out and shone over the silent plains, for the men, women and children had vanished with the day.

THE "WAWAN," OR PIPE DANCE OF THE OMAHAS.[1]

By Alice C. Fletcher.

"Wa-wan,"[2] means, "to sing for some one." The ceremony of which this is the name was one of the means in ancient times by which possessions were accumulated and exchanged, and honors counted and received. In a tribe one gens would sometimes "pipe dance" another gens; the ceremony, however, was generally exchanged between different tribes. The wa-wan party carries to the person visited, gifts of eagle war bonnets, bows and arrows, guns, red stone pipes, tobacco bags, otter skins, leggings, buffalo robes and blankets, and receives in return, ponies. In old times, so tradition says, pottery, bows and arrows, tents and dogs[3] were the return gifts.

The ceremonies of the wa-wan are elaborate and governed by strict rules, and an established ritual. Songs which have been handed down for many generations, and containing words not in common usage, form a part of the ritual and are never omitted. They are as follows:

1. The song of approach to the lodge.
2. I-he-the wa-an. Song of laying down the pipe.
3. Am-ba-i wa-an. Morning song.

[1] To Mr. Frank La Flesche I desire to acknowledge my indebtedness for most valuable assistance in the preparation of this article. His intimate knowledge of the customs of his tribe, together with his intelligent appreciation of the need of preserving an accurate account of the rites and ceremonies already becoming obsolete, make his labors in behalf of ethnological research worthy of especial recognition. To Miss Sarah Eliot Newman, of Boston, I also express my obligation for the transcription of a portion of the music. The Indian musical scale having different subdivisions from our own, the original songs lose a little of their native tone by being forced into our conventional scale. The continental sounds are given to the vowels in writing Omaha, and the italicized *n* signifies the nasal sound. c = sh. x = qh.

[2] The Wa-wan as herein described, with a few minor points of difference, is in use among the Omaha, Ponca, Iowa, Otoe, Pawnee and Sioux tribes. Further research may show a wider range, and its original source be discovered.

[3] The old men have traditions of a different kind of dog from those at present owned among the Omahas. The former dogs are described as large and shaggy, resembling the wolf, and strong and useful as burden carriers, and noted as good hunters.

4. First and second part of the final dance.[4]
5. Song when approaching and entering the lodge of the Han-ga.
6. Han-ga ki-an wa-an. Painting the Han-ga.
7. Putting the feather on the Han-ga.
8. Han-ga the-ze wa-an. Taking the Han-ga.

Other songs are used in the ceremonies, but they are selected by the singers, and pipe bearers. The Omaha Indians have about thirty of these songs, so far as known. The tribes that practise the wa-wan have songs peculiar to themselves,[5] and the Indians are quite critical of each other's music.

Certain articles are needful for the performance of the wa-wan rites and these must all be provided by the leader of the party. They are as follows:

1. "Ni-ni-ba we-a-wan num-ba." These two pipes are peculiar to this ceremony although they may be used as peace pipes in time of trouble and danger, when the sacred pipes are not available. The pipes are about three feet long, made of ash sapling, and have no bowls.[6] The stem is thrust through the dried skin of a duck's neck which has the bill and feathers still on. The bill simulates the bowl. Beyond the duck-neck feathers, several large eagle feathers depend in a fan-shaped arrangement. Where these feathers join the duck-neck skin, a buckskin thong about four feet long is tied, having fastened at each end a bunch of downy feathers, like a ball. These bunches are called "we-ta eggs." Next to the eagle feathers is a cone-shaped ornament of owl feathers. These feather decorations extend over nearly one third of the pipe's length. About six inches from the owl feathers is fastened the first of three clumps of narrow strips of white

[4] All the tribes which have the Wa-wan use the same ritual music for "Part First" and "Part Second" of the final dance, "I-man-tha-ba-jan," while the rest of the musical ritual and the dance songs are different.

[5] The Pawnees have their own music, with the exception mentioned. The Iowas and Otoes use each other's songs. The Poncas and Omahas have their wa-wan music in common. The Sioux borrow from the other tribes, but use principally the Omaha songs. All these songs conform to the peculiar measure of the wa-wan dance ritual, but differ somewhat in style.

[6] The stems of the pipes have holes through them so that they can be used for actual smoking. Smoking is sometimes simulated, and the obligation accepted by the symbolism is as binding as when the fumes are present. The perforation of the stem is carefully made, and the hole is frequently quite large, in order to prevent the accident of clogging. Among the Pawnees, if a stoppage occurs in smoking a peace pipe the bearer loses his life.

rabbit[7] skin eight inches long, which hang from the stem like tassels. Red woodpecker heads are bound on the stem, one at the top of each tassel. The spaces where the wood of the stem is visible are painted in red and green stripes.[8]

2. "Jan-ja-ta." A crotched stick, made of hard wood painted red. In the crotch the mouth-pieces of the two pipes are to rest.

3. "Pexe numba." Two gourds. These are painted with a green band about the middle, from which start two bands equidistant, crossing each other at right angles over the top of the gourd, dividing the half into four equal parts.

4. "Ni-ni-ba-xte." A buffalo bladder pouch. This pouch is painted in the same manner as the gourds, and tied with twisted sweet-grass. Tobacco and "kinnekinick"[9] are in the pouch.

5. "Ni-thu-de." A whistle of an eagle's wing-bone having at one end a white downy feather, said to be plucked from under the wing. These feathers are called "hin-xpe" in distinction from the large eagle feathers. The hin-xpe are the kind used in sacred ceremonies.[10]

6. "Hin-xpe tha-bthin." Three feathers, one for each of the two pipe-bearers, to be afterward used by the two dancers in the final dance. The third feather is worn by the runner, afterward by the wild-cat skin bearer during the ceremonial approach to the lodge, and laying down the pipes for the first time; finally it is worn by the han-ga, or child of the man who receives the wa-wan party. These three feathers are tied to the pipes when not being used as described.

7. "Wa-ha-ba." An ear of corn, white, without blemish and very full, and called the mother. A green band is painted around the middle from which four stripes extend to the top of the ear. The ear of corn thus decorated, like the gourd and bladder pouch,

[7] The skin used in making the tassels is from a large rabbit called by the Omahas "Man-stin-ska." The part cut into strips is taken from the breast of the animal.

[8] These pipes are costly and the various articles needful for their manufacture are bartered between different tribes. Only a man who has given away horses, or proved himself valiant in battle, or prudent in counsel, can make one of these pipes. The honor, therefore, lies in being able to make a pipe, as a comparatively unimportant person can receive one as a gift.

[9] "Kinnekinick," called by the Omahas "ni-ni-ga-hi," meaning "to mix with tobacco," is made from the inner bark of the dog-wood, and dried in narrow strips over the fire, on a sieve shaped like a battledoor and made by interlacing thin pieces of wood. The dried curled strips are powdered between the fingers.

[10] When the whistle is laid upon the wild-cat skin the feathered end is placed toward the east in the same direction as the mouth-pieces of the pipes.

is tied around the middle by a buckskin thong to a stick about a foot and a half long and painted red.[11]

8. "In-gthan-ga-ha." A wild-cat skin[12] within which all the foregoing articles are wrapped. During a part of the ceremonies in the lodge the skin is spread and certain of the articles laid upon it.

Eight to twelve is the usual number of a wa-wan party. Occasionally one or two wives of the men accompany to attend to the cooking, setting up the tent, etc., but generally the men go alone and do all the work.

Certain duties and forms are observed from the time of starting on the journey, and rites are performed *en route*. The ritual of the wa-wan begins with the peculiar approach to the lodge, set apart for the party on their arrival about sunset at the camp circle of the tribe visited. The ceremonies continue for four nights and well on into the day following the last night. At the conclusion, the party return home at once, being careful to leave the camp circle before sunset.

When a man decides to inaugurate a wa-wan party, he mentions his intention among his friends, but invites no one to join him. Those who are inclined to accompany him, volunteer to do so. Each one of the party must contribute his quota of gifts, these are sent to the man who inaugurates the party and who is called "Nu-dan-han-ga," or leader. For several nights before starting the party meet to rehearse the songs of the wa-wan. It is a point of honor to have the ceremonies pass off creditably.

On the day of starting, the leader selects one of the party to carry the wild-cat-skin roll. It is slung across the man's shoulders like a quiver. The needed provisions for the journey and the feasts to be given during the visit, and the gifts accumulated, are tied in bundles and packed upon ponies, and the company move out of camp amid the good wishes of their friends. Should game be plenty a little hunting is permissible but on no account must any one of the party drink water from his hand, or use any for washing until the close of the ceremony.

[11] The figure drawn upon the tobacco pouch, the two gourds, and the ear of corn, is the cross, indicating the four quarters. The use of the color green has already been mentioned. The sweet-grass braid which ties the pouch is invariably used in sacred ceremonies.

[12] The skin of the small wild-cat is used by all the tribes which practise the wa-wan. So far as I have been able to learn there is no choice of skins allowed. Among the Pawnees the wild-cat must be shot by an arrow, the Omahas have the same regulation.

During the journey should the weather be stormy for several days, the party halts for the rites of augury concerning their success, but if the sun shines this observance is deferred until within twenty-four hours of their destination, when the following ceremonies take place:

Soon after dawn the buffalo bladder pouch is taken from the wild-cat-skin roll and given to one of the elder men of the party, who is selected to be the "Ni-ni-a-thi*n*," or runner, to carry the bag to the lodge of the man whom the leader has determined to visit in this ceremonial manner. The runner is clad in leggings, breech-cloth and moccasins; a buffalo robe, hair outside, is tied about his waist with a buckskin thong, the tail crossed over his breast from right to left and passed under the thong, the head end hanging over the left shoulder and wrapped about the figure.[13] The hi*n*-xpe is tied in his braided scalp lock. This costume indicates his official character. Three young men are selected to attend the ni-*n*i-a-thi*n*, and are attired in the same manner with the exception of the hi*n*-xpe.

On arriving at the camp circle the four men walk in single file to the lodge of the designated man, and after entering, the ni-ni-a-thi*n* delivers an address and presents the pouch to the host. This is the manner of asking whether the honor of the wa-wa*n* will be accepted or not.

The demands made upon a man who accepts the pouch are heavy, therefore he always consults his near of kin and the leading men of his gens, for according to the law of kinship, their help is expected. Soon after the arrival of the runner and his followers, the host sends for his relatives; when they have assembled the pouch is laid before them and the proffered honor deliberated upon. A wa-wa*n* party of ten would require the gift of from twelve to thirty ponies, and the host, or as he is called by the wa-wa*n* party, "I-ni-thi" (his son) usually gives his best horse to the leader. It is a point of honor to respond liberally to a wa-wa*n* party. If however a man should accept the honor and give but a half dozen

[13] The manner of wearing the buffalo robe as described is peculiar to sacred ceremonies. As all serious enterprises are closely connected with religious rites, the robe is worn in this way at councils when chiefs are chosen, when the duties of the Nu-da*n*-ha*n*-ga or Leader of the Hunt are accepted, and when the runner of the wa-wa*n* is dispatched. In wearing the robe thus there seems to be the idea of recognizing the power made known in animal life, and man's dependence upon food for health and strength. This idea is more clearly set forth when taken in connection with the attitudes assumed while the robe is thus worn during religious ceremonies.

horses, the leader of the wa-wan would be justified both by usage and public sentiment in refusing to complete the ceremonies. He would in that case take the ponies already presented and retire from the camp, with his pipes, etc. The gens would thereby suffer disgrace for presuming to accept an honor they were unable to meet.

The wa-wan can be refused honorably for two reasons. The recent death of a near relative, the family being in mourning and not joining in festivities, and, the decision of the leading men of the family and gens that they are too poor to make a response commensurate with their position and that of the leader proposing to visit them. When a refusal has thus been decided upon, sometimes one of the men will say: "We are too poor and cannot accept the honor, but, the man shall not go away empty handed. I will give him a horse." The pony is brought to the lodge and the runner and his followers take the horse, and return with the pouch to the wa-wan party and repeat to the leader the message sent. The expedition is given up for that time and the party go home at once or else visit the tribe unofficially for a few days. If the kindred and gens decide to accept the wa-wan, the pouch is retained by the host and the runner sent back with the words: "Tell him (meaning the leader) to come. We are ready for him."

Shortly after the departure of the runner, in the early morning, the wa-wan party prepare for the ceremonial of the augury "Wa-the-gthan." One of the older men, after all are seated, fills a pipe and passes it to the one of the party having the gift of prophecy, who taking the pipe tells the bearer of the wild-cat-skin to unfold the roll and spread the pipes. The skin is laid down some ten or more feet from the group, the head pointing in the direction of the tribe about to be visited. The crotched stick is thrust into the ground at the head of the skin, and the mouth-pieces of the pipes are crossed and rested in the crotch, the other ends of the pipes touching the skin. In the flare of the pipes the two gourds are placed side by side, and the whistle on the neck of the skin. To the right the ear of corn stick is set. In front of the skin a circle of about two feet in diameter is drawn upon the ground having an elongated opening toward the pipes, the sod is removed from within the outline and the brown earth exposed.[14]

[14] The form cut in the ground is like that used in the Ghost Lodge and other ceremonies of the Ogallalas. In the tribal sacred festival of the Omahas the ground is mellowed near the sacred pole, where the white buffalo skin is exposed, and a similar figure drawn.

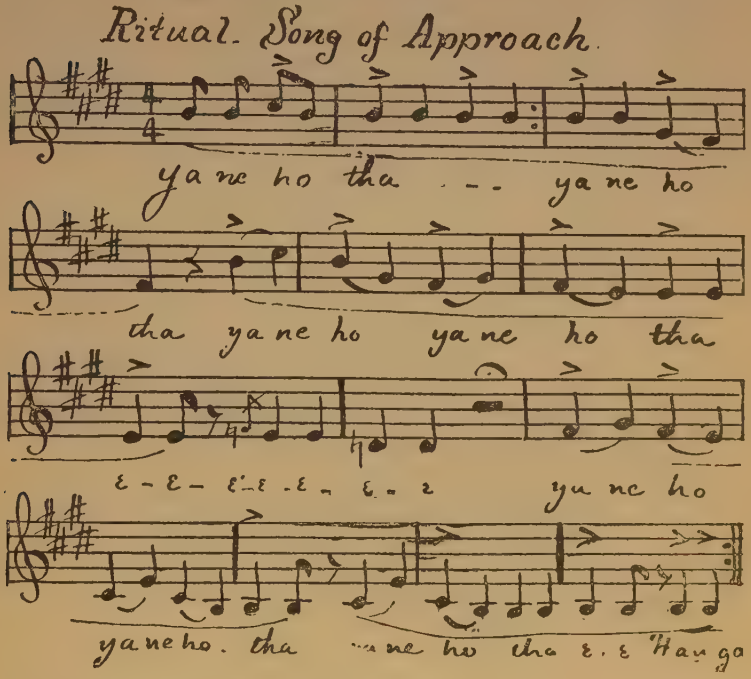
When these arrangements are completed, the man gifted with power to prophesy rises from his place and approaching the pipes, walks to and fro behind the skin, holding the mouth-piece of the filled pipe toward the sky. As he walks he sings the song sacred to his personal vision. After ten or fifteen minutes, he halts and calls the young men of the party to him saying: "Come! I will tell you what I have seen." He then recounts how he has seen, as in a mist, a number of horses approaching the pipe of the leader, and describes them. After this recital he lights the pipe, and the party smoke together. The augury is not always propitious and stories are told of the prophet foretelling the refusal of the bag, or that an inadequate number of horses would be given and the consequent failure of the wa-wan.

When the augury is over the pipes, gourds, sticks, etc., are returned to the wild-cat-skin roll, and the party move on. When within a mile or so of the camp they are met by the runner with news of the pouch. If he brings the message of acceptance the party continue their march until within sight of the camp-circle, when they halt and await the coming of the messenger from the host. On his arrival he informs them which lodge has been set apart for their use, bids them advance, and departs as he came.

The leader then selects two men who are good singers and dancers to carry the pipes and lead in the ceremonial approach to the lodge, and in the ceremonies of the first three days and nights. These two men and the bearer of the wild-cat-skin roll, dress themselves in the same manner as the runner when on his official errand. The buffalo robe is worn as before described, except that the head end is passed under the thong leaving the neck and arms of the men bare. The hi*n*-xpe feathers are tied in their long braided scalp locks. The pipe bearers hold the pipes in their left hands, the mouth-pieces presented toward the line of advance and the gourds are grasped in their right hands. The wild-cat-skin bearer carries the roll slung across his shoulders. Only these three men wear the buffalo robe. The two pipe bearers lead, and the rest of the party follow in groups, the leader bringing up the rear.

On reaching the camp circle or open space, the ceremonial of approach is begun. The two pipe bearers walk abreast, presenting the pipes, and begin the song of approach, keeping time to the music by a slow sliding step, a rhythmic movement of the body, the

swaying of the pipes and the tremulo of the gourds. The song sung at this time belongs to the musical ritual and is never omitted. It is considered to be old.

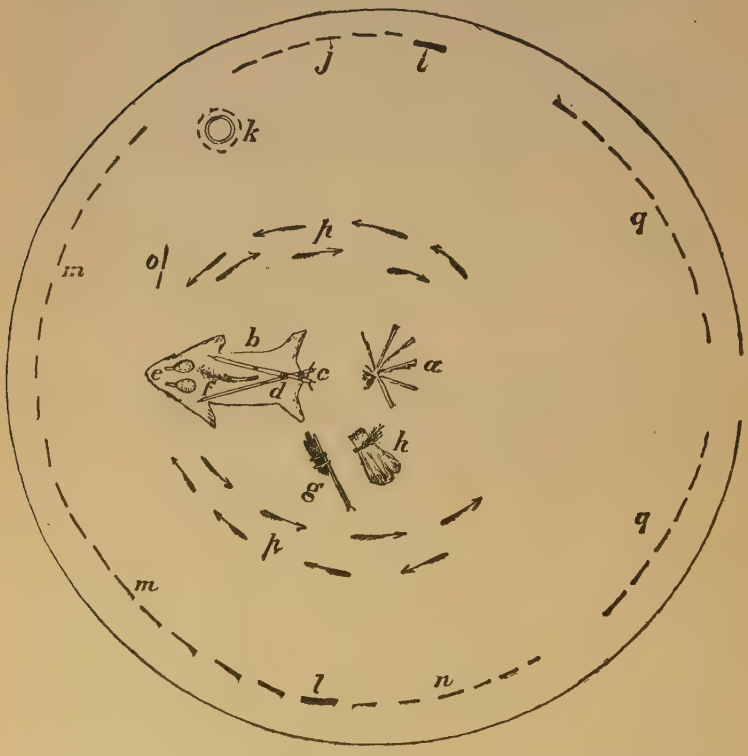


The two pipe bearers sing the song slowly. At its close they halt, and the entire party come to a standstill. After a short pause, the pipe bearers begin the song again, moving on as before, and at the close of the song the halt and pause are repeated. The song is sung four times, and the last halt is made at the door of the designated lodge. This ceremonial approach occupies nearly half an hour, and requires good management in order to get over the ground, observe the pauses, the time of the music and arrive at the lodge when the fourth halt is due.

The two pipe bearers enter the lodge (Fig. 1) and pass round by the left, back of the fire which is burning in the centre of the floor. The bearer of the skin takes his place between the two bearers of the pipes. The roll is taken from his shoulders and opened. Holding the neck of the skin in his left hand, and the middle of the back

by his right, he lays the skin down, the head to the west, about three feet behind the fire. The crotched stick is thrust in the ground at the tail of the skin and at the right of it the stick with the corn is set in the floor. One of the pipe bearers begins one of

FIG. 1.



Arrangement of Lodge of the Wa-wan party.

a. The fire. *b*. Wild-cat-skin. *c*. Crotched stick. *d*. Two pipes (the peculiar feather ornaments are not indicated). *e*. Two gourds. *f*. Whistle made of wing-bone of an eagle. *g*. Ear of corn tied on the painted stick. *h*. Tobacco pouch. *i*. Position of Wa-wan leader. *j*. Wa-wan party. *k*. Drum and drummers. *l*. The host. *m*. Young braves of host's party. *n*. Kindred of host and head men. *o*. Position of dancers of the fourth night when sitting. *pp*. Direction of dancing by the two dancers on the fourth night, one on each side of the fire. *qq*. Poor of the gens and tribe.

the ritual songs of laying down the pipes[15] and sings alone; the first two bars are accompanied by the skin bearer, who gives with the whistle a rapid presto note. On the repeat the two pipe bearers begin the song together without the whistle and proceed to the end. The pipes are swayed, and the tremolo of the gourds given during the singing. The song is repeated four times; during the fourth time, the pipes are circled over the wild-cat-skin like an eagle circling over its nest, the circles are made lower and lower, until at the close of the music, the pipes are gently laid upon the skin, as the bird would alight on its nest. The mouthpieces of the pipes rest upon the crotched stick and the bowls on the shoulders of the skin, the gourds and the whistle are placed as during the augury ceremony. The three hiⁿ-xpe feathers are removed from the scalp locks and tied to the pipes, and not used again until the fourth night. The space between the articles thus arranged and the fire is never stepped upon.

The ponies are unpacked, the bundles of provisions and gifts brought into the lodge and stored at the north side, the entrance being toward the east. A drum is borrowed and placed at the left of the skin. The food for the feast is prepared and everything made ready for the evening.

About sunset the host enters the lodge passing by the left, and places the buffalo-bladder pouch, he had received from the runner, to the right of the stick with the ear of corn, and takes his seat on the south side, opposite the leader who sits on the north side of the lodge. Shortly after the kindred of the host and the head men of the gens arrive and sit at his left; the young "braves" follow and take their place at his right; on either side of the entrance of the lodge are huddled the poor of the gens or tribe.

The wa-waⁿ party may if they choose begin to sing and dance of their own accord, but they generally wait until requested to do so. The food which is prepared for the feast cannot be eaten until some one of the host's side shall say, "Let us eat." This remark, or the request for a song, obliges the one who asks to give a pony to the

[15] It is the custom among all the tribes I have studied, for one man to sing the first few bars of a song alone, and then pause, after which the song is begun again by the band of singers. In this way the leader of the singers makes known his choice of a song. There are frequently several repeats; four is the usual number. It is during the first solo that the whistle is sounded.

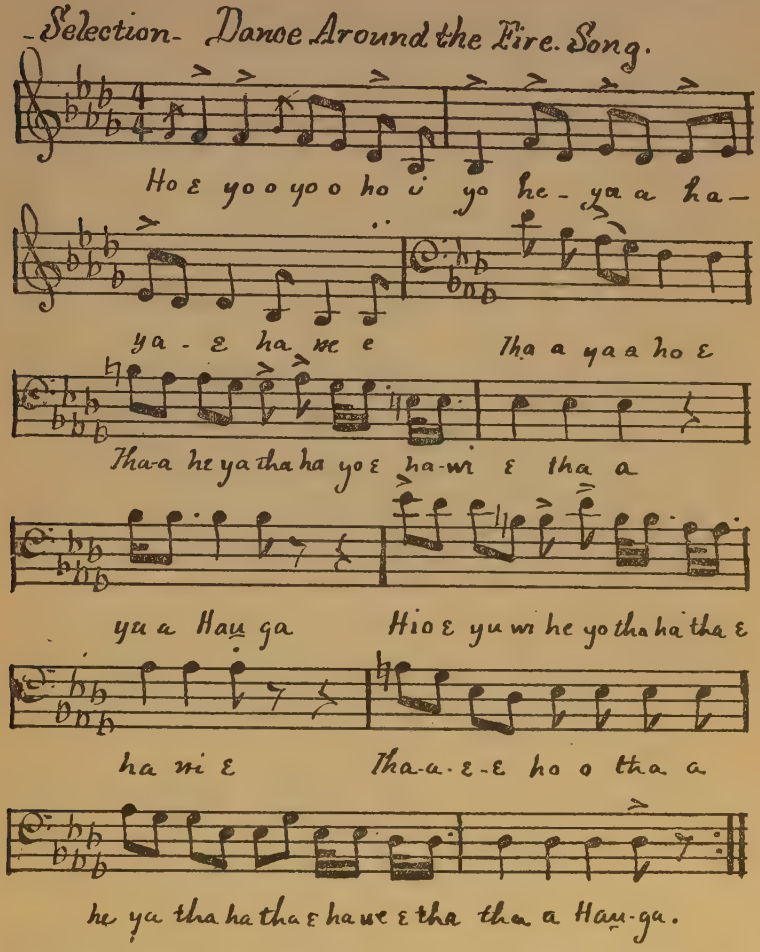
wa-wan party. If the dancers do not begin of themselves, the proper mode of inaugurating the evening is for a young man, a relative of the host, to address the leader of the wa-wan, and say:

"Father, arise, and sing for us, you have come to sing and dance for us."

The host at once rises and advances to the young man who has thus given a horse, and standing before him raises both hands, palms outward, and drops them slowly; then passes his right hand over his left arm from shoulder to wrist and repeats the same motion with the left hand upon the right arm. He then moves along in front of his kindred and gens, addressing each one by a term of relationship and raising in thanks his right hand palm outward. Meanwhile the leader crosses over to the young man, who has given the horse, and repeats the same sign of thanks, as that first given by the host. The leader then raises his right hand palm outward, turns his body to the left, then to the right, thus covering with his thanks the host's side of the lodge. As soon as the young warrior addresses the leader, an old man from among the poor of the tribe rises and begins a song of thanks, passing out of the lodge as he sings. He introduces in the song the name of the young man. The song is sung twice, after which the old man calls out twice the name of the young man who has given the horse that all the camp may know of the act. This form of triple simultaneous thanks is observed after each gift of a horse made to the wa-wan party.

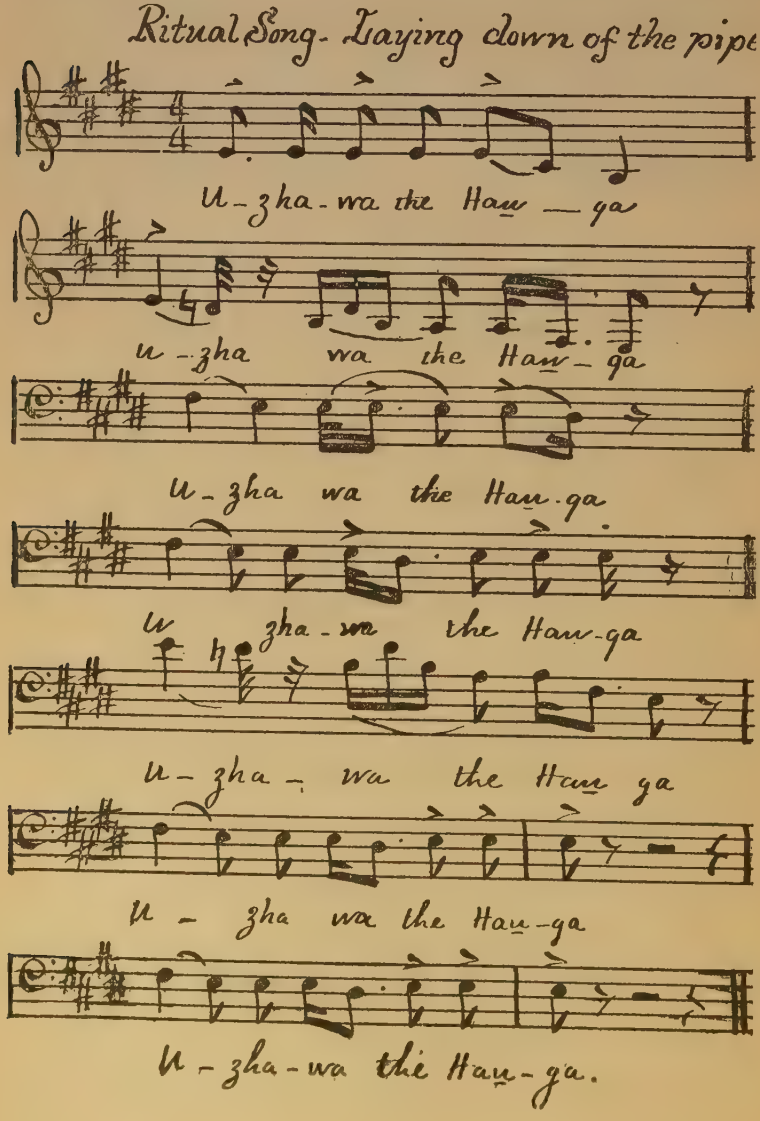
When the leader has completed his thanks he tells the bearers of the pipes and skin to get ready to dance. The bearers dress as before described except the omission of the hin-xpe feathers. After the pipes and gourds are taken up, the stick with the ear of corn, the tobacco pouch and the crotched stick are rolled in the skin and the crotch allowed to project from one end of the roll. The skin bearer dances between the pipe bearers and holds the skin roll with both hands accenting the time with it. The three men dance abreast moving slowly in a wide circle around the fire. They are followed at a little distance by about six of the wa-wan party who carry the drum between them and beat it in accord with the rhythm of the song which may be selected by the dancers. In making the circuit of the fire, one song is repeated four times with a short pause between each repeat. Four songs and four circuits make the

full dance. The following is one of these dance songs. The only word is at the close of the cadence, Han-ga; all else are musical


-Selection- Dance Around the Fire. Song.
Ho ɛ yo o yo o ho i yo he - ya a ha -
ya - ɛ ha we e
tha a ya a ho ɛ
tha-a he ya tha ha yo ɛ ha-wi ɛ tha a
ya a Hau ga
Hio ɛ yu wi he yo tha ha tha ɛ
ha wi ɛ
tha-a-ɛ-ɛ ho o tha a
he ya tha ha tha ɛ ha we ɛ tha tha a Hau-ga.

syllables. During the fourth song the movement is faster, and but three pauses are made; while singing the fourth repeat the bearer of the skin unrolls it, lays it down as before described, places the pouch and the sticks in their positions and makes ready for the singing of the regular ritual song of laying down the pipes. There are two of these songs. They are called "I-he-the-wa-an." The first has no words and is sung when the pipes are placed upon the skin after entering the lodge and whenever the

pipes are laid down before a horse has been given to the wa-wan party. After the gift of a horse has been made, the following second ritual song is used. The words are: "This is a joyful time, Han-ga." All the motions of the pipes previously described are repeated.


Ritual Song. Laying down of the pipe
U-zha-wa the Haŋ-ga
U-zha wa the Haŋ-ga
U-zha wa the Haŋ-ga
U zha-wa the Haŋ-ga
U-zha-wa the Haŋ-ga
U-zha wa the Haŋ-ga
U-zha-wa the Haŋ-ga.

At any time during the festival a man who has asked for a song, thereby presenting a horse, may ask for a second song without incurring the necessity of another gift, but etiquette forbids his asking for more than two to one gift. This rule does not apply to the host. A man who has given a horse can also say; "Let us eat," without any further gift. After the first formal request already described, the customary words used in asking for a dance, and so giving a horse, are: "My father, your sons wish to hear you sing."

The leader is called "Da-di-ha," my father, and the host and his gens are sons and are addressed by the leader as "Ni-thi-ha."

A horse may also be given in the following manner:

One of the host's party goes towards the pipes, takes up the tobacco pouch and carries it back to his place and fills his pipe from it. The host at once arises and makes his thanks as described, while the old man sings his song of thanks and calls out the donor's name, and the leader expresses his gratitude in the usual way. After the formal thanks are over the man returns the pouch to its place.

Generally not more than two dances are performed during one feast. Sometimes a feast and dance take place in the afternoon: in that case there are no ceremonies in the night. Four feasts are given by the wa-wan party. The feast is eaten after the dances around the fire are concluded.

The ceremonies of a night are sometimes prolonged because of the hesitation of men on the host's side to come forward with gifts of horses. At such times the old men will rally the young men and remind them of their obligation to ancient customs. The following speech was made by an aged Omaha, named Am-ba-he-he under similar circumstances of hesitancy, when the Omahas were receiving a wa-wan party from another tribe.

"Ho! In-cta sun-da-jin ga, Han-ga-ce-nu-jin-ga e-da-be. Wa-ckan-e-gan-i-ga. In-ca-ge thi-thi-ta the-cnan tha-te-xi i-ye-de-gan a-tha-ki pa-i ha. Eo-ste ni-ni-ba the-te-thi-ze cnan-i-ha si-gthe u-gi-ha i-ga ha. Tha-ni-ta-i-te-di za-za-e i-btha ki-tha-i-ga ha. E-da-dan jin-ga a-cni-egi ga-tha-i-ga ha. Tha-ta-i-ki a-cni cna-ba-zi ta-i-te ha. Mancu-cu de the-ke we-a-ki-ci-bthan tai-te ha. In-ca-ge te gan-za-i-gan te-xi ha. Ce-nu-jin-ga! Wa za-ni! Ho! Gan wi-gi-pa-xe ta-ya-tha da-dan wi-gi-the wa-za-ni nanxi-de wi-gtha-zan-i ha.

Ho! Incta-sunda-jin-ga. Han-ga-ce-nu-jin-ga (Inctasunda, youngmen; Han-ga, young men, thus including the active men of both sides of the camp circle), together exert yourselves. Your ancestors have declared this only to be hard, and you meet it now. Even they have often accepted these pipes, follow the footsteps of those who were your fathers. While you are living make that for yourselves which brings honor and satisfaction. What little you have, give of that away. When you die you cannot take it with you. Soon we shall be mixed up with this dust. Old men have taught us that death is inevitable, and it is hard. Young men, all! Ho! This let me do for you and be done, as I make the ears of you who belong to me to ring!"

At the feasts given by the wa-wan party, only the relatives and friends belonging to the host can partake, in accordance with the custom that those who give a feast must not eat of it. The host must abstain as he is classed with the leader and his party. At these feasts the same regulation is enforced as at the feasts called "Han-gu ki-ku," during the sacred tribal festival, when the meat cannot be eaten with the use of a knife.

Two men are selected by the leader to fill the pipes of the host and his friends. The wa-wan party cannot smoke. Every morning the two pipe bearers sing the following ritual song, which is the signal for the party to rise, prepare the food and enter upon the duties of the day.

"Am-ba i-ya-tho ku-the-gan u-han-ga."

"The day is coming! Hasten and prepare the food."

When the lodge is not in ceremonial use the pipes are tied one on each side of the centre post[16] by a buckskin thong passing under the cone-shaped ornament of owls' feathers. The stems are elevated toward the east. The skin roll containing the other articles is fastened a few inches below on the same post. The pipes and the roll point east and west.

While the wa-wan party remain in the host's camp they do all their own work and are obliged to render any service asked of them by members of the tribe. This affords opportunity to the small boy to play tricks and tease. He will put his head in at the lodge door and say: "Father, I want some wood!" or, "Father, I want

[16] The first post south of a line drawn through the centre of the lodge, from east to west, is called the centre post. This name applies to the one in the inner circle of posts of the mud-lodge and not in the outer circle. The same name is given to the similarly situated tent pole of the tent.

some water!" and the man addressed is obliged to go and get the wood or water.

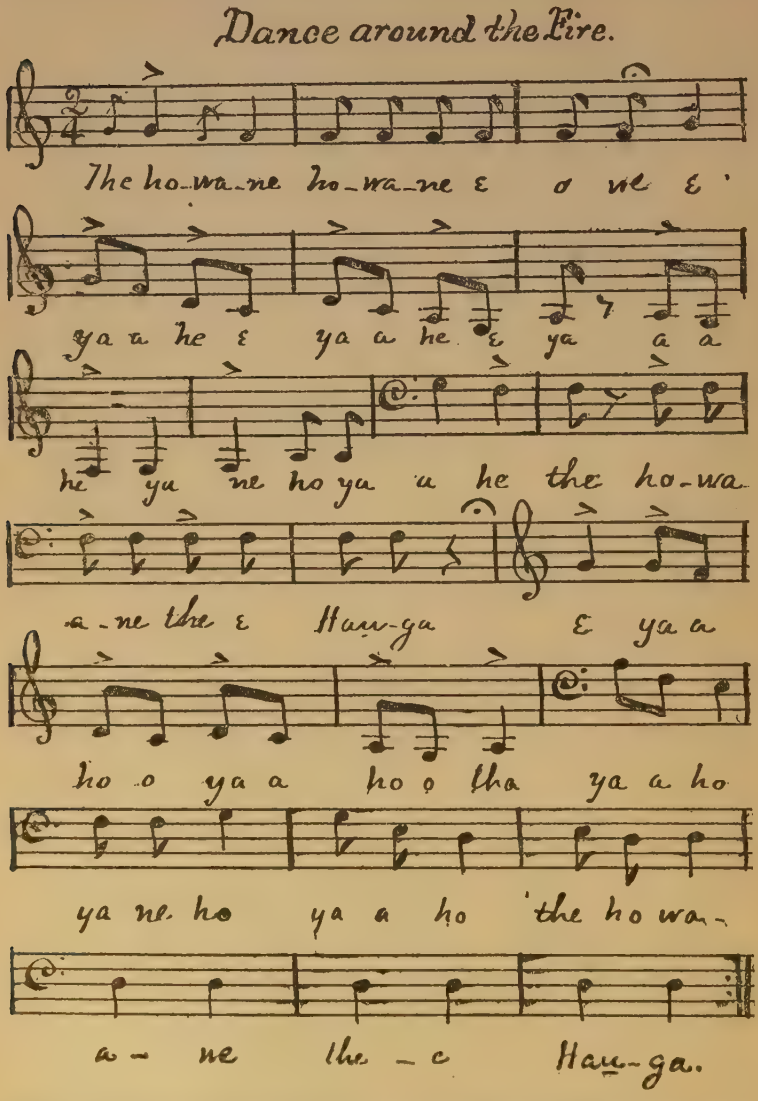
When the fourth night arrives the leader decides whether he will complete the ceremony, or withdraw taking with him the pipes, etc., the bundles of gifts he had brought and the ponies he has already received. His decision depends upon the number of horses so far given to the wa-wan party. If the host says that his young men have presented all the ponies they can afford and the number is insufficient to go around the wa-wan party, the leader declines to proceed further. If, however, the number received and those promised by the host are enough to divide, the leader prepares for the final dance. The lodge is arranged as before described, and while the feast is being made ready the host and his friends arrive. When the food is cooked it is set near the fire on the opposite side from the skin. After some one has said; "let us eat," and so given a pony, the host selects four men to serve the food. While the host's party are eating the two pipe-bearers array themselves, and voluntarily dance around the fire, singing one of the wa-wan songs. The following song is worthy of note for the grace and charm of its music which is as free and as tender as the breeze among the prairie blooms. The only words are: "The ho-wa-ne Han-ga," and the usual musical syllables. The words signify "This is what I seek, Han-ga."

After the feast one of the elder kinsmen addresses the host and says: "Ke, in-da-di ce-man wa-thin gthe ta-te-ha. Gan ba-jan te ha." "Now let this be all that my father takes home with him. Let him sway the pipes." This speech is equivalent to saying the same thing to the leader. If this mode of address is not used, then the host will say directly to the leader of the wa-wan: "Ke, da-di-ha, ce-wan wa-sni tha-gthe ta-te ha. Ke ba-jan ga ha." "Now, father, this is all you shall take home. Now sway the pipes."

After this speech the leader chooses two young men who take the bundles of gifts and opening them, lay the articles in a heap to the north of the skin. The leader advances and stands having the gifts at his right hand, and says: "Hou! Ni-thi-ha the e-wi-bthin a-ti-i ha!" "Behold sons! this is what I have brought you!" To which the host and kindred respond, "Hou!"

The host, or one of the principal men, selects two young men from among the kindred, and directs them to divide the gifts among

those who have given horses. These young men quietly enumerate the donors of horses, count the goods and then distribute


Dance around the Fire.
The ho-wa-ne ho-wa-ne ε o we ε
ya a he ε ya a he ε ya a a
he ya ne ho ya a he the ho-wa
a-ne the ε Hau-ga ε ya a
ho o ya a ho o tha ya a ho
ya ne ho ya a ho the ho wa-
a - ne the - e Hau-ga.

them. The most valuable gifts are presented to the noted men. Should they, however, desire the credit of counting their gifts of

ponies, on a similar occasion, or, toward their "Hundred,"[17] the presents they now receive from the wa-wan party must be by them given away to some one, not a relative, or to a poor person. The poor therefore often receive a portion of the gifts brought by the visitors. If the number of articles should fall short of the number required to give each donator of a horse, a gift, the host tells the young men to divide the pipes and indicates to whom they are to be given. The wild cat-skin will, in that instance, go with one pipe and the tobacco pouch and corn stick with the other. It is proper for the host to do this, as at the close of the ceremony the pipes and other ceremonial articles become his property.

After the disposal of the gifts, the leader selects two athletic young men who are to perform the dance of the fourth night and the next day. These young men do not sing: the songs are rendered by the men who sit about the drum. The final dance may be said to be divided into two parts. The first is performed on the fourth night, and is called "I-man-tha," the assurance that the dance will be completed. The second is performed on the morning after the fourth night, when the "Han-ga" or child is present. This is the true final dance and is called "Ba-jan." The young men who are to dance take off their moccasins and strip themselves to their breech-cloth, a red circle is painted on their breasts and on their backs. The hin-xpe are taken from the pipes and fastened in their scalp-locks.

The leader advances to the pipes and taking one in his left hand says: "When a pipe like this was brought to me, I gave" so many, mentioning the number of "horses;" here, he waves the pipe to indicate a new count, the drum is struck and he continues: "when a pipe like this was brought to me I gave" so many "horses;" again the wave of the pipe and sound of the drum. "When a pipe like this was brought" to such and such a man "I gave" so many horses, and so on. After thirty or more horses have been counted on one pipe, it is handed to one of the young men selected to dance. The leader then takes up the other pipe and continues his count in the same manner, and when he has concluded hands the pipe to the second dancer. Unless the leader of a wa-wan party be a man of distinction, he can hardly make a good showing at

[17] When a man can count a "hundred," he has given away a hundred ponies or their equivalent, and he can put "the blue mark," "Kthe-xe," on his daughter, and becomes a candidate for certain tribal honors.

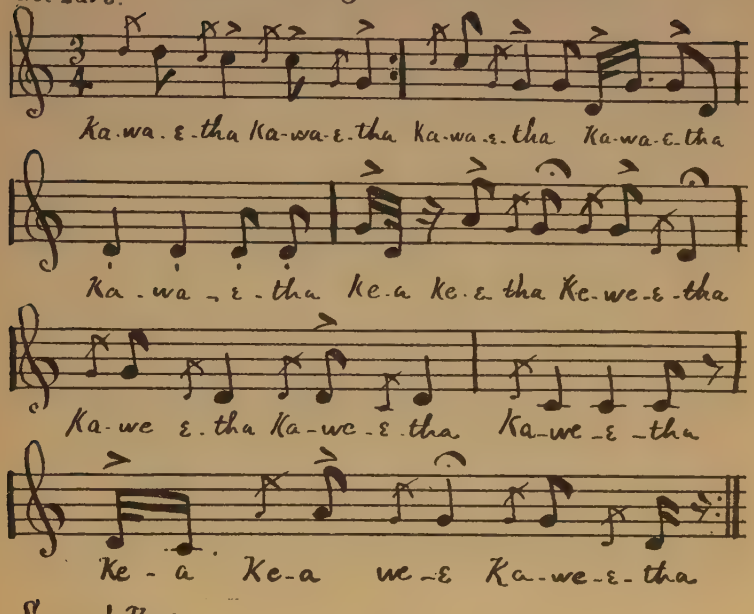
this time. If, however, the leader be a comparatively young man and just coming forward, he is often obliged to call on some of his kindred or gens to count on one of the pipes. The leader, however, must be able to outcount any member of his party, and the party must be able to count over fifty horses.

After the pipes are handed to the two dancers, the other articles except the gourds are rolled up in the skin and laid away, and one of the men seated at the drum gives the prolonged signal call, which is followed by the victory shout from the rest of the drummers. The two dancers begin to sway the pipes, and give the tremolo of the gourds, and the ritual song of the final dance is started as before described. This song is divided into three parts, the first and second parts are each sung four times, and belong to the old wa-wa*n* ritual and are never omitted or varied. The third part has no fixed song, but selections are permissible. All the songs composed for this third part must, however, be in the same time, and have the peculiar call of the dancers and response by the drummers. During the first and second parts, the dancers remain sitting, swaying the pipes and accenting with the gourds until the time changes in the second part to $\frac{3}{8}$ when they rise to take a few dancing steps, after which they sit again. The first bar of the third part is sung by one man, on the repeat by all the drummers, at which the dancers rise and each one takes his place and dances on opposite sides of the fire in a line like one-half of an ellipse, advancing and returning on the same track. The movements are rapid, the knees are lifted as high as possible, the body bent forward, the arms extended and moving like wings. To suggest the eagle's movements seems to be the idea of the dance. It is during the part third song that the peculiar interruptions characteristic of the wa-wa*n* ceremony take place. When these occur, the part third song is broken off at the point of interruption, and the two dancers sit. The drummers begin again at the part first, and on through part second to part third, when the unchallenged dancer rises and proceeds with the dance, while the challenged dancer remains sitting. If the challenged pipe has been returned to the dancer, he too resumes the dance on his side of the fire. This peculiar musical sequence is here given, the old ritual songs of part first and second, and a selection belonging to part third.

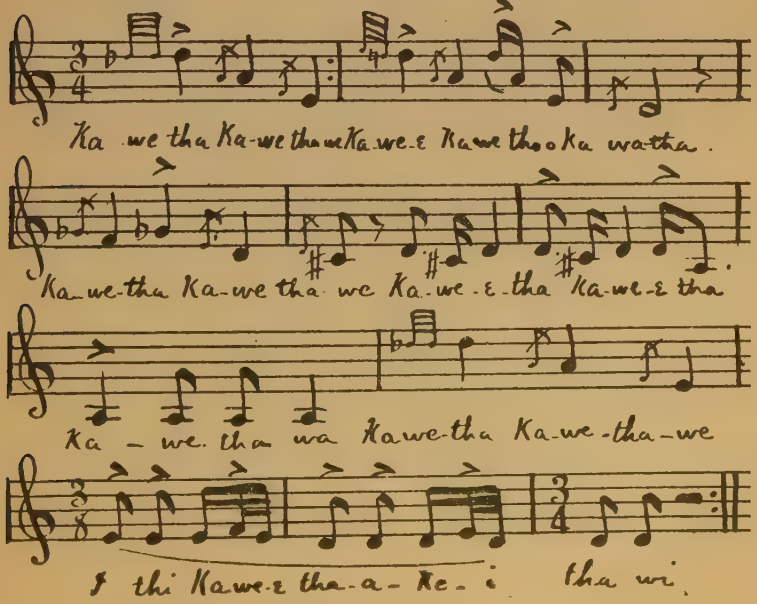
The interruptions take place as follows: one of the host's kindred or gens advances toward a dancer and takes the pipe from

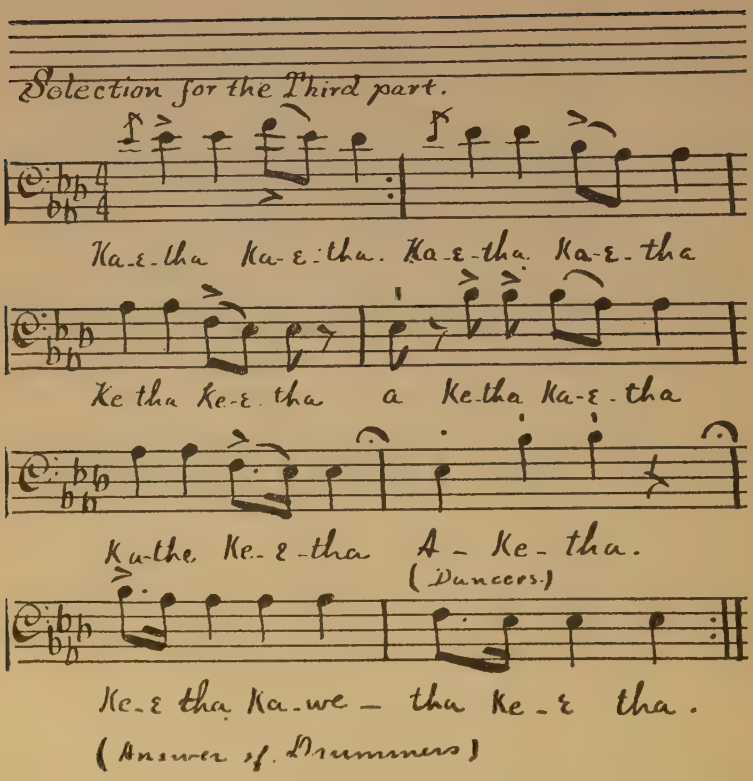
Ritual-Song for Final Dance.

First Part.



Second Part.

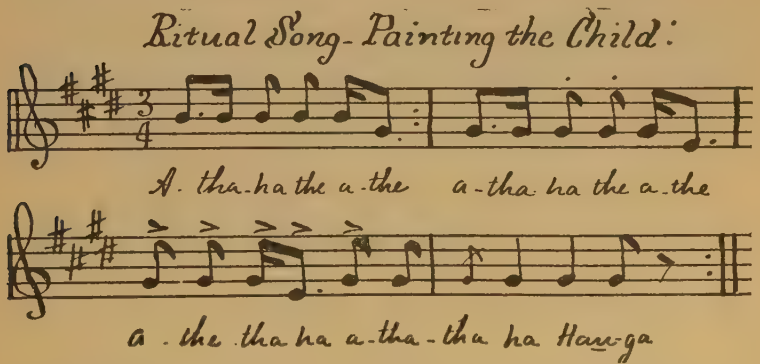

Ka we tha Ka-we tha we Ka-we-ε Ka we tha o Ka wa tha.
Ka-we-tha Ka-we tha we Ka-we-ε-tha Ka-we-ε tha
Ka-we-tha wa Ka we tha Ka-we-tha-we
I thi Ka-we-ε tha-a-Ke-i tha wi.


Selection for the Third part.
Ka-ε-tha Ka-ε-tha. Ka-ε-tha Ka-ε-tha
Ke tha Ke-ε tha a Ke-tha Ka-ε-tha
Ka-the Ke-ε-tha A - Ke - tha.
(Dancers.)
Ke-ε tha Ka-we - tha Ke-ε tha.
(Answer of Drummers)

him. The dancer immediately retires to his seat. The challenger holding the pipe says to the leader of the wa-wan party: "Father! a pipe like this was brought to me and I gave," so many "horses," accenting with the pipe he continues, "when a pipe like this was brought" to such a man, indicating him, "I gave" so many "horses. If you can exceed that number, take up your pipe again!" He lays the pipe down on the ground just where he had stopped the dancing and returns to his seat. The leader if possible makes answer from his own record, but if the number challenged is too large for him, he calls upon some of his party to count up the deficiency. Should the wa-wan party be unable to exceed the challenger, the man who has made it returns the pipe to the dancer and the dance is resumed. The pipe may be challenged by a man reciting a deed of valor and demanding its equal from the wa-

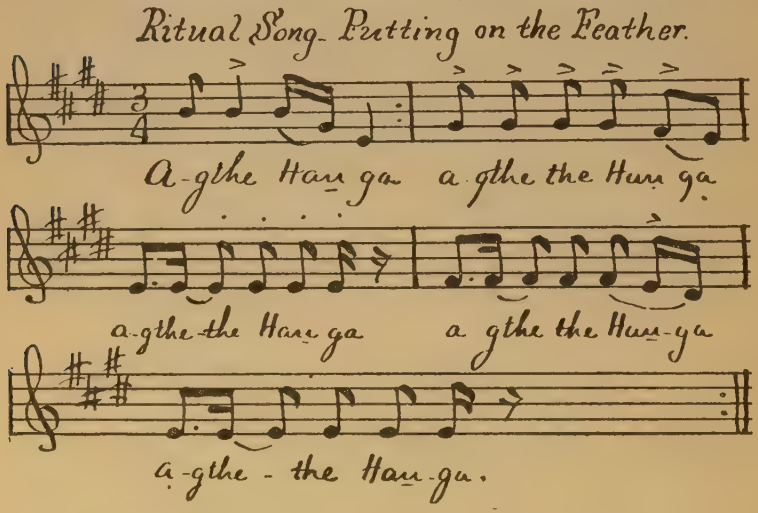
wan party. Sometimes both pipes are challenged, then the music ceases until the pipes are redeemed. Tests are played upon relatives by demanding of them a record of their gifts of horses on similar occasions. If the relative, who is generally a young man, cannot meet the challenge, he can redeem the pipe by dancing for a time in the place of one of the regular wa-wan dancers. This calling out of young relatives is accompanied by much laughter and many jokes, and adds greatly to the sport. Most of the fourth night is consumed in these ceremonies.

The next morning before sunrise and without breaking their fast, the wa-wan party proceed to the lodge of the host singing the ritual song of going for the han-ga. The third hin-xpe is taken from the pipe and together with the stick having the ear of corn is placed with the clothing which has been brought for the child. The pipes lead, carried by the two dancers of the preceding night. At the door of the host's lodge a halt is made, after which the party enter and resume the song, accompanied as before, by the swaying pipes and the tremolo of the gourds, while one of the younger children is handed to the leader to be dressed by him. This over, the party sing the following ritual song for the painting of the child, who is called the Han-ga.[18] The words signify "I cause this to ad-



[18] The name Han-ga given to the child is the name of the gens the third from the eastern opening of the tribal circle on the south. This gens has charge of the two sacred tents, containing the pole and white buffalo skin. The southern half of the circle of gentes is called the "Han-ga-ce-nu." "Pa-han-ga-di," signifies, "in the beginning." "Pa-han-ga, man-thin-ga," "go first." "Mi-han-ga," a woman's name of the Han-ga gens, "meaning first woman." "Han-ga" seems to indicate the ancient one or time, the leader, and has both a religious as well as a tribal and historical meaning.

here. It adheres to you Han-ga." The leader designates the man who shall do the painting and also the way in which it shall be done. The face of the child is first painted red, then a black band, about half an inch wide is drawn across the forehead near the line of the hair, from each end, a similar band is drawn down each side of the face to the lower jaw, thus forming three sides of a square. White down is put on top of the head, and if the child is a boy the hin-xpe is tied in his scalp lock, if a girl, the feather is fastened to a lock of hair growing on the crown of her head. The following ritual song is sung during this decorat-

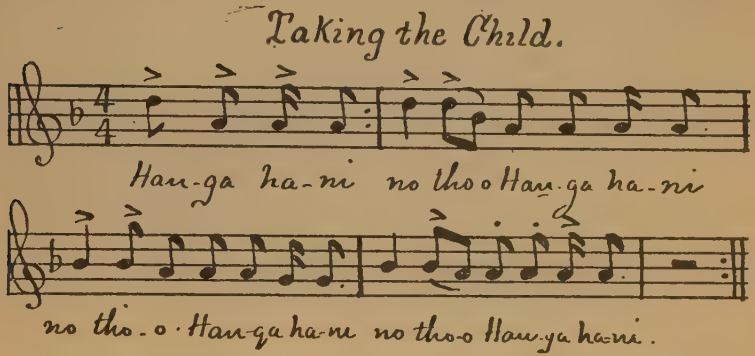


ing, and the leader calls out in a loud voice, his deeds of valor. The words of the song may be rendered: "I cause it to stand on you Han-ga."

This and all the songs are accented by the pipes and gourds. The leader selects a man to carry the han-ga on his back, bound on by a blanket in the same way as a woman usually carries her child. The wa-wan party, led by the man with the han-ga, the pipes following him, return to their lodge, and sing as they go the following ritual song:

On returning to the lodge the leader sits back of the fire in the place previously occupied by the cat-skin and holds the child in his arms, together with the cat-skin and crotched stick. The pipes

are placed just in front of him ready to be taken up. He then calls upon some member of the party to take up the pipes and count his gifts of ponies, which is done in the manner previously described. The man who thus counts continues to take the place of the leader during the remainder of the ceremonies, while the leader holds the child. If, however, there is no member of the party able to make a sufficient count, the leader passes the child over to the most distinguished member who holds the child as



before mentioned, while the leader counts upon the pipes. When this ceremony is completed the man with the han-ga seats himself outside the entrance to the left as you approach, holding the child between his knees.[19] The leader takes his place in front of the entrance, on the han-ga's left hand. The two dancers sit at the leader's left, and the drummers a little back of the dancers.

The men who have given horses to the wa-wan party make ready to hand them over. The horses are generally led up to the wa-wan leader by a child, the son or daughter of the giver. As the bridle is put into the leader's hands, he takes the ear of corn, which the han-ga holds, and passes the corn down the left arm of the child who has brought the horse, and then strokes in a similar way the child's right arm, after which the ear on its stick is handed back to the little han-ga to keep until the next horse is brought up. Mean-

[19] The child sometimes fails to appreciate the honor conferred and will kick and scream during the ceremony of dressing and painting, and while being carried. The older folk often tell amusing tales of their struggles when they were little han-gas, and how they were fed with the best that the wa-wan party could give to make them content. Sometimes a little fellow will succeed in making off to his playmates, who would deck themselves with the paint and feathers of the han-ga, and indulge in pranks common to childhood, unmindful of the serious ceremonies of their elders.

while the two dancers begin the "ba-ja*n*," or final dance, which is similar to that of the preceding night and subject to like challenges, and having the same musical ritual. The members of the party not engaged at the drums are busy picketing the horses as they are brought in. Only the children who lead up the horses are stroked with the ear of corn in thanks. Sometimes a man in full gala dress, well painted and his horse also decorated, will ride up in front of the ha*n*-ga and there recount his valiant deeds, the drummers responding. He then rides back to his lodge and sends a gift of a horse by his child. The day is far spent before all the horses are gathered in. The ceremonial articles are left with the host,[20] and the wa-wa*n* party hasten to leave and get on their journey. They go into camp less than a mile off and there cook and eat their first meal after a fast of nearly twenty-four hours.

The distinctive mark of a wa-wa*n* party is the wild-cat-skin roll containing the pipes and the other ceremonial articles and the members are regarded by all who meet them as peace-makers because of the presence of the pipes. Should a war-party come in sight the pipes would insure safety. In such an event the warriors would make a wide detour, thus permitting the wa-wa*n* group to pass unmolested, even though belonging to the tribe about to be attacked. A war-party can be recognized from other travellers by all the members being clad in white robes or blankets and having their faces whitened with clay, and the hair concealed under a white cloth bound about the head. This costume makes the men less liable to be noticed as they thread their way through the yellow grass, for after July and during the winter the prairies are of a tawny color. Should a wa-wa*n* party be attacked by a war-party it would be considered a grave offence because of the dishonor shown the pipes.[21] The homeward journey of a wa-wa*n* party may be fraught with danger as the pipes have been left with the host and the party

[20] A man who accepts the tobacco pouch may be visited by the same wa-wa*n* leader four times, who must bring each time a new set of ceremonial articles. The host, however, must never visit in a similar way the leader or his gens, as they are fathers and the host and his gens are sons, but the sons may call on the fathers to help in receiving a wa-wa*n* party.

[21] About thirty years ago an Omaha war-party soon after leaving the village encountered a solitary Ponca. They were intent on winning an immediate success and hastily shot and killed the man. On coming near the body they discovered to their dismay that the victim was the Ni-ni-a-thi*n*, or runner, of a wa-wa*n* party on his way with the tobacco pouch to an Omaha chief. The war-party returned at once to the village and proclaimed their deed. A few leading men started with the peace-pipes and hastened to the place where the Poncas were awaiting the return of the runner.

is therefore no longer insured against attack. Much vigilance is necessary to secure safety. When about two days' journey from the village the horses are divided among the party by the leader, who takes the first choice and those who contributed the most valuable gifts follow accordingly. After the distribution the party disband and each one speeds home with his ponies. If, however, the leader chances to be a man highly regarded, the party will keep together and enter the village in triumph.

When the Poncas learned what had happened, they were very angry and intent upon war. The pipes were offered to each man of the party and by each man refused. Determined on peace, the Omahas again offered the pipes which were again refused, and it was not until the fourth offering of the pipes that the Poncas consented to condone the offence and the welcome symbol of smoke rose over the offenders and the offended. The Poncas were induced to return with the Omahas as guests. They were cordially received by the village and many gifts were made in testimony of the appreciation on the part of the Omahas of the wrong which had been done.

SEVENTEENTH REPORT.

ABSTRACT FROM THE RECORDS.

MONDAY, FEBRUARY 18, 1884. The Annual Meeting of the Board of Trustees was held at noon in the rooms of the Massachusetts Historical Society, Boston. Present: Messrs. WINTHROP, GRAY, WHEATLAND, SCUDDER, PHILLIPS and the CURATOR.

The PRESIDENT read a letter from the Hon. STEPHEN SALISBURY, stating that a temporary indisposition prevented his attending the meeting, which he particularly regretted as he was "connected with no other object of the kind that is so satisfactory in its system and its administration."

After the reading of the records by the SECRETARY, the TREASURER presented his report which was accepted and ordered to be printed as part of the Seventeenth Report of the Board. The CURATOR'S cash account, audited by the SECRETARY in the absence of the AUDITOR, was accepted and ordered to be printed. The CURATOR then read extracts from his Annual Report, which was accepted and ordered to be printed in full, as part of the Seventeenth Report of the Board.

It was then *voted* that the TREASURER be authorized to pay the accruing income to the CURATOR to be expended for the several purposes as heretofore.

It was also *voted* that the Trustees visit the Museum and hold a business meeting there at such time as the President may appoint.

The PRESIDENT read a communication addressed to the President and Fellows of Harvard College in relation to certain provisions of the trust, which was referred to Messrs. GRAY and LYMAN as a committee of conference.

The copy of Mr. WINTHROP'S communication and of Mr. SALISBURY'S letter were, by vote, added to the records of the Board, and the meeting then adjourned.

HENRY WHEATLAND,
Secretary.

REPORT OF THE TREASURER.

To the Trustees of the Peabody Museum of American Archæology and Ethnology, in connection with Harvard University.

The TREASURER respectfully presents the following Annual Report:—

Income Account.

1883.				
July 1.	Received	Pueblo and Arkansas Valley R. R.		
		45 coupons $35 each	$1,575 00	
Aug. 1.	"	Chicago, Burlington and Q. 4 per cent Bonds,		
		62 coupons $20 each	1,240 00	
	"	Kansas & Missouri R. R.		
		54 coupons $25 each	1,350 00	
Oct. 1.	"	Coupons United States Bonds	2 00	
1884.				
Jan'y 1.	"	Pueblo & Arkansas Valley R. R.		
		45 coupons $35 each	1,575 00	
	"	Coupons United States Bonds,	2 00	
Feb'y 1.	"	Chicago, Burlington & Quincy 4 per cent Bonds,		
		62 coupons $20 each	1,240 00	
	"	Kansas & Missouri R. R.		
		54 coupons $25 each	1,350 00	
				$8,334 00
1883.				
July 1.	Paid	F. W. Putnam, Curator,		
		Account of Building Fund	$1,555 00	
Aug. 1.	"	F. W. Putnam, Curator,		
		Account of Museum Fund	2,610 00	
1884.				
Jan'y 1.	"	F. W. Putnam, Curator,		
		Account of Building Fund	1,555 00	
" 4.	"	for Fire Insurance, $3,000 for 5 years,		
		Mercantile Marine of Boston	37 50	
Feb'y 1.	"	F. W. Putnam, Curator,		
		Account of Museum Fund	2,576 50	
				$8,334 00

Investment Account—Museum Fund.

			Dr.	Cr.
1883.				
Feb'y 17.	By Balance of cash uninvested			$263 75
July 26.	To Cost $200, United States 4's at 118¾		$237 50	
1884.				
Feb'y 18.	To Balance		26 25	
			$263 75	$263 75
1884.				
Feb'y 18.	By Balance of cash on hand.			$26 25

JOHN C. PHILLIPS,
Treasurer.

BOSTON, FEBRUARY 18, 1884.

CASH ACCOUNT OF

Dr.

F. W. PUTNAM, *Curator, in Account with Peabody*

1883–84.

To Building Fund.

Balance on hand from last account	$2000 07	
Received from John C. Phillips, Treasurer	3110 00	
" Cash, discount on bill	1 04	
		$5111 11

To Museum Fund.

Balance on hand from last account	476 41	
From Building Fund, 4th payment account of cases 1868–74	600 00	
Rec'd from Smithsonian Inst. for drawings and photographing	27 00	
Received from John C. Phillips, Treasurer	5186 50	
Publications sold	39 68	
Received cash for express paid	1 00	
Gift from a friend	33 00	
Clerical services of Assistant on salary account	65 50	
		6429 09

To Subscriptions for Archæological Research in America.

Balance on hand from last account	428 92	
Received from Mrs. Susan C. Warren of Boston	250 00	
Received from Mrs. George O. Shattuck of Boston	5 00	
Received from Mrs. Clara B. Kimball of Boston	100 00	
Rec'd from Wm. B. Weedon, Esq. of Providence, 2nd subscription	50 00	
Received from John C. Phillips, Treasurer, the following subscriptions:		
Mrs. G. H. Shaw of Boston	100 00	
Dr. R. M. Hodges of Boston	100 00	
Hon. Robert C. Winthrop of Boston	100 00	
S. D. Warren, Esq. of Boston	500 00	
Geo. Peabody Russell, Esq., Isle of Wight, Eng.	100 00	
		1733 92

To Subscriptions for Research among Indian Tribes.

Balance on hand from last account	550 00	
		$13.824 12

THE CURATOR.

Museum of American Archæology and Ethnology.

Cr.

1883–84.

By Building Fund.

Paid Museum Fund, 4th payment account of cases 1868–74	$600 00	
Cases, stock and labor	1303 17	
Painting and repairing old cases	146 93	
Furniture, stock and materials used	96 88	
Repairs on building	33 01	
Express	24 95	
E. E. Chick, part salary	500 00	
		$2704 94
Balance, cash on hand to new account		2406 17
		5111 11

By Museum Fund.

Collections purchased and special explorations	1147 74	
Stereotyping and printing	600 00	
Drawing and engraving	99 56	
Various publications	46 80	
Library; books, subscriptions and cards	16 33	
Photographing and materials	100 73	
Diagrams, cloth, etc.	46 93	
Mounting Stone Idols	20 25	
Cutting meteorite	16 00	
Stands for Crania	17 16	
Postage, telegraph, telephone, express	236 03	
Stationery, twine, etc.	9 93	
Paper trays	19 75	
Water tax	25 00	
Fuel and gas	181 01	
Extra labor	9 26	
Incidentals	25 75	
Salaries	3800 00	
		6418 23
Balance, cash on hand to new account		10 86
		6429 09

By Subscription for Archæological Research in America.

Explorations in Central America	652 80	
Explorations in Ohio and Tennessee	940 57	
Explorations in New Jersey	75 00	
		1668 37
Balance, cash on hand to new account		65 55
		1733 92

By Subscription for Research among Indian Tribes.

Amount to new account	550 00
	$13.824 12

I have examined this account, with the vouchers, and find it correct.

HENRY WHEATLAND.

Feb. 18, 1884.

REPORT OF THE CURATOR.

To the Trustees of the Peabody Museum of American Archæology and Ethnology:—

Gentlemen: — The explorations which were carried on in 1882 by means of the liberal subscriptions of several friends of the Museum, whose names are given on page 158, have been continued to the full extent of the means at our disposal, during the past year, and most important results have been obtained with the aid of the pecuniary assistance which was so timely given; but, unfortunately, it has not been sufficient to enable us to complete the work in the Little Miami valley;— a work which has developed on our hands as the explorations proceeded, until we have been led to subterranean explorations where at first we supposed that all of importance was to be found in the tumuli above the level of the surrounding land. Now, just as our means have given out, we have come to such an important subject for investigation that to stop the work will be a discredit. I have been twice to the Little Miami valley since your last annual meeting to look after the work in person, and Dr. Metz has been on the ground almost daily between my visits, so that the work has been conducted in a thorough and careful manner whenever it was possible for the men to dig during summer and winter. We have obtained from the owner of the land the exclusive right to carry on the exploration and to remove such trees as may be necessary for thorough work, but it will cost at least fifteen hundred dollars to complete the exploration in a proper manner. Long trenches will have to be dug and thousands of cubic feet of earth will have to be turned over.

The large mound in the group of altar mounds mentioned in the last report has proved to be of a far more complicated structure than was made evident by our work of 1882. We now find that the mound is surrounded by a stone wall two feet high, which is below what at first we took to be the natural level upon which the mound was erected, and that the stones covering the mound start

from this wall. At one place the wall was higher and wider and contained a cavity in which were the burnt remains of a human skeleton, a large sea-shell, fragments of copper earrings, and a singularly carved piece of a deer's antler, possibly representing a rattlesnake. Over these remains stones had been arranged so as to form a dome-shaped covering.

Within this wall is a bed of burnt clay. This we first thought to be limited to the vicinity of the altars, but the indications now are that it covers the area enclosed by the wall. Under this burnt clay we have discovered a singular series of pits about three feet in diameter and four to nine feet deep. These pits are connected with tunnels or tubes eight feet long and a foot in diameter, having a slight dip downward from the pit and ending in a small vertical tube which extends to the "concrete" or gravel layer above the burnt clay. The walls of these pits show the effect of great heat and at the bottoms are ashes containing fragments of burnt bones. The long tunnels, or flues as we are inclined to call them, still retain their form perfectly and on the floor of each is a layer of fine ashes. At the further ends of these flues the walls are covered with a thin glossy incrustation, evidently formed by the condensation of vapors. In two instances the pits had dome-like coverings of clay, and in one of these covers were two small holes. These covered pits were, like the others, partly filled with burnt material, above which was an empty space. One of the pits without a cover had a short tube extending from it in an opposite direction to the flue. In one instance two of the pits were connected with a single flue.

Work has only just commenced on this singular series of pits, to get at which it is necessary to cut a deep trench and remove a large portion of the mound above them. We do not yet know how many there are, but eight have already been discovered. Of course the first impression is that these pits are the cremation places of the people who built the elaborate tumulus above them, but much more extended field work must be done and careful chemical and anatomical analyses be made before the purpose for which they were used can be stated. We can only say now that interesting works have been discovered and from indications in other parts of the mound, as well as in the vicinity of the pits, we are convinced that we are only beginning to understand this important group of tumuli erected over several kinds of ancient burning-places.

That there was once a wooden structure over the pits seems to be indicated by many holes in the gravel forming the natural surface, which are now nearly filled with a fine black earth which we think was in part formed by the decay of upright timbers or posts.

Another singular discovery was made while removing an eastern segment of the mound. It was found that, at some time after the mound had been completed, a large hole, about ten by fifteen feet in diameter and seven feet deep, had been dug in the side of the mound, cutting through all the upper layers, including the stone covering, down to the sand layer. At the bottom of this hole were two human skeletons, lying in ashes, which also extended around portions of the excavation, and arranged about them were sixteen human skulls without other bones. This singular burial was unquestionably intrusive, but at what period it took place we have as yet been unable to ascertain.

But I have said enough to call your attention to the importance of the work which is being done by the Museum at this place, and I can only hope that your endorsement of it will be the guarantee for its completion in a manner which will prove creditable to the Museum and of value to American Archæology. It has already shown that any conclusions drawn from our present knowledge of the ancient earthworks in the Ohio valley must be taken with proper allowance for the imperfect record of facts upon which they have been based.

In pursuance of our plan of making a thorough archæological exploration of the Little Miami valley, Dr. Metz has carefully examined several small mounds as opportunity offered during the year. One of these is situated about a mile from the village of Madisonville, in what is known as Stite's grove. In this grove are many beautiful maple trees, the largest and finest I have ever seen. Under the shadow of these old trees is a small mound not over four feet high, surrounded by an embankment of earth, enclosing an area one hundred feet in diameter. This proved to be a burial mound and in it were the much decayed fragments of several skeletons. A short tubular pipe made of stone and two perforated stone ornaments or gorgets were found with the human bones. Pieces of steatite pots and two stone pestles were found in the earth composing the mound, which had been previously disturbed. The details of these explorations with the descriptions and drawings of all the mounds and their contents will be given

when our explorations of the region are completed. It is my object now simply to call attention to the progress of the work and to note a few of the many mounds which we have already examined in the valley.

Four mounds, in group C of the Archæological Map of Anderson Township by Dr. Metz, were explored. One of these is on the farm of Mr. William Edwards, who is one of many gentlemen owning farms in the valley who have given to the Museum the exclusive right of exploration upon their lands.

Mound 21 of group C was about four feet high and fifty in diameter. It proved to be made entirely of the sandy loam of the immediate vicinity. The remains of five skeletons were discovered at different points in the lower portion of the mound. The bones were nearly all reduced to dust and only a fragment here and there could be saved. There was not a single relic found with the skeletons, and a few flint chips and a broken arrowhead were the only artificial objects found in the earth composing the mound. The condition of the bones showed considerable antiquity, but their advanced decay and friability were probably largely due to the character of the soil in which they were enclosed. The position of the skeletons rather goes to show that the several bodies were buried at different times and that the mound was gradually constructed as the burials took place. For the present we are inclined to consider this mound, with some others in the valley, as a place of sepulchre by tribes of a more recent time than the builders of the earthworks of the Turner group.

Another mound, No. 22 of the same group, on the farm of Mr. Samuel Edwards, was explored by Dr. Metz and proved to be of a more interesting character than the last. This mound was fourteen feet high and about one hundred in diameter. It was composed of pure clay except in the central portion. Five feet from the top there was found a hard mass of burnt earth and ashes, seven feet deep and a little over nine feet in width and length. Resting on top of this, about in the centre and covered in part by the overlying clay, lay a large stone celt. A foot below this, in the burnt material, was a stone implement perforated at its upper end. Below this at points, several feet apart in the burnt mass, were three holes, or pockets, each of which contained the remains of portions of human skeletons surrounded by a thin layer of clay. Near the bones in the lowest pocket were three spearheads, or

chipped points. A few potsherds and several flint chips were found throughout the burnt mass. Under it was a circular bed of black soil and ashes, thirteen inches thick in the centre and fourteen feet in diameter, beneath which was a layer of fine sand and gravel, three inches thick, which covered another circular bed of black soil and ashes, fourteen inches thick in the centre and fifteen feet in diameter. Directly under the centre of this lowest layer was a pit four feet deep, ten feet four inches long, four feet wide at the ends and three feet five inches wide at the centre. This pit probably had contained a wooden structure, as its sides showed rough striations as if large logs had once rested against them. The pit had been dug in the drift gravel upon which the mound was built and was nearly filled with soft spongy ashes mixed with a reddish substance. Extended at full length at the bottom of the pit was a human skeleton with the head to the west. Among the bones of the neck a single shell bead was found; at the feet were ten stones or small bowlders such as are common in the drift gravel. It is evident that this interesting tumulus was erected over the grave which was dug in the underlying gravel, and that the human bones placed in the burnt mass above the grave, with the few stone implements found in or on the mass, had some connection with the funeral ceremonies which took place in connection with the burial of the body in the pit below. The regularity of the deposits over the pit, which was under the centre of the mound, seems to be sufficient proof of this.

Another mound on the land of Mr. Samuel Edwards, No. 23 of group C of the map referred to, proved to be almost identical in structure with the mound on Mr. Gould's farm near Reading, of which a brief account is given in the last report (see p. 175). Neither of these mounds contained human remains; under each were four small pits, and both mounds were distinctly stratified. They still further agree in being surrounded by embankments. In the Gould mound there were five strata, in the Edwards mound there were only four. The pits under the latter contained ashes. A single stone celt was found near the surface of the Edwards mound. The mound was four feet high and sixty feet in diameter. The embankment was about two feet high, and enclosed an area two hundred feet in diameter. On the inside of the embankment was a shallow ditch. Ploughing and cultivation of the land for many

years unquestionably have reduced the mound and embankment from their original height and also partially filled the ditch.

Between these mounds and the river, about one hundred yards from the bank, on an elevated portion of the bottom land, was a mound differing in construction from any of the others explored in this vicinity. Mr. Samuel Edwards, a venerable gentleman of ninety-five years, who is still hale and active and has taken a great interest in our explorations, pointed out the mound to Dr. Metz; and his brother, Mr. William Edwards, stated that sixty years ago it was about nine feet high and covered by a heavy forest growth which also extended over the region about. Over fifty years ago the land was cleared and the mound scraped down by Mr. Edwards, who after removing about four feet of earth from its summit came to a large quantity of stones with which were many human bones. Since that time the mound has been ploughed over and stones have been taken from it until it has been so nearly levelled as hardly to be noticed. Thus only the base of the mound could be explored, but that has proved of great interest in connection with the other works of the valley. On removing the earth around the base it was found that stones, many of considerable size, had been so arranged as to form a mound about five feet high in the centre and ninety feet in diameter, over which earth had been placed to the height of about four feet, as stated by Mr. Edwards. In height, about one-half of the stone portion of the mound was undisturbed. On removing the outer covering of stones it was found that many burials, probably at least one hundred, had been made in the mound. The remains of seventy-one skeletons were obtained. These skeletons were all more or less crushed by the stones which surrounded them, as, in addition to the outer stones of the mound, each body had been surrounded with stones at the time of its burial. In many instances large slabs of limestone had been used and in a few cases they were set on edge around the body. In other cases small stones had been piled around and over the bodies which had been placed in various positions, some extended and others flexed in various ways. With many of the skeletons were stone implements and ornaments, among which were several of the flat stones with two or more perforations, generally known as gorgets. There were also many bone implements, shell and bone ornaments, and cut teeth of bears. Several small cop-

per awls in bone handles, and the shells of box-turtles were also found with the skeletons. Many fragments of pottery and broken bones of animals were scattered through the mass of stones and human bones. At the feet of the skeleton in the centre of the mound there was an upright slab of limestone, two feet long by twenty inches wide, and with this skeleton were the following objects. Resting on the chest was a large ornament made from the apex of a conch shell, with a hole at one edge for suspension; below this, on the ribs, was a spear-shaped gorget with one hole, and by its side were several shell ornaments also perforated. Lying near the right femur and parallel with it, was a carved bone, grooved on the under side and having two holes; between this and the leg bone were four small pieces of carved bone about an inch in length. In the bones of the right hand was a small awl made of native copper and inserted in a little round handle made of bone, similar to others found with other skeletons in the mound. At the south side of the mound, on the original surface, was a burnt space on which was a large quantity, several bushels, of broken bones of animals, clam shells and fragments of pottery mixed with ashes. This mass seems to have existed before the mound was made, or at all events completed, as five of the burials had taken place above it. On the plain about the mound are evidences of the site of a former village, and the annual ploughing brings to light many animal remains, fragments of pottery, and stone implements of the same character as those from the mound. From this fact and from the character of the burials in the mound, as well as that of the objects found with the skeletons, and from the absence of the characteristic ornaments found with so many of the human remains in the Turner group and other ancient mounds of the Ohio valley, we are led to look upon this stone mound as the burial place of a tribe of Indians living in the region subsequent to the builders of the Turner mounds. The remains found in this stone mound, as a whole, indicate that the people here buried were closely connected with those who made the singular ashpits in the ancient cemetery near Madisonville. Limited explorations of a burial place further down the valley have already brought to light many implements and ornaments of stone, bone, shell and copper, as well as pottery, similar in character to those found in the Madisonville ashpits and in the stone mound. In connection with this burial place, the exploration of which has only just begun, I will only state that

the singular grooved implements made from the leg bones of the deer, so common in the Madisonville ashpits, have been found in this new place as well as in the stone mound.

The different periods to which the various mounds and burial places belong can only be made out by such a series of explorations as the Museum is now conducting in the Little Miami valley, and when they are completed we shall be better able to answer the question, "Who were the mound builders?" than we are now. That more than one of the several American stocks, or nations, or groups of tribes, built mounds seems to me to be established. What their connections were is not yet by any means made clear, and to say that they all must have been one and the same people seems to be making a statement directly contrary to the facts which are yearly increasing as the spade and pick in careful hands bring them to light. That many Indian tribes built mounds and earthworks is beyond doubt, but that all the mounds and earthworks of North America were made by these same tribes, or their immediate ancestors, is not thereby proved. Mr. Carr, in his recent paper published by the Kentucky Geological Survey, has taken up the historical side of the question, but it must not be received for more than he intended. He only shows from historical data what the spade and pick have disclosed to the archæologist. It is simply one side of the shield; the other is still waiting to be turned to the light, and as history will not help us to read the reverse, only patient and careful exploration will bring out its meaning.

After the meeting of the American Association for the Advancement of Science at Minneapolis, in August last, I took advantage of my proximity to the singular earthworks of Wisconsin to visit several groups of the effigy mounds which are found by the side of nearly every river and lake in the portion of the state between Lake Michigan and the Mississippi. This excursion was made in company with my friend Mr. John Cone Kimball who also acted as photographer, and my son who rendered assistance in the explorations.

During a portion of the time the Rev. S. D. Peet of Clinton, Wis., was with us and we are much indebted to him for his guidance to interesting groups with which he was familiar, or about which he had received information. Descriptions and drawings were made of several groups not before noted, and the latter have been reproduced as diagrams for use in the Museum, and also as lantern slides.

As our excursion was one of general observation, only four mounds in one group were examined to ascertain their structure and contents. This group is situated in the city park of La Crosse, and by permission of the authorities and the kind assistance of Mr. Losey and Mr. E. B. Usher the mounds were carefully explored, but unfortunately they had been previously disturbed. The "effigy" in this group is of the form known as the "turtle," but it as well represents the outstretched skin of a buffalo or deer. Associated with this are three low conical mounds. In the centre of the effigy mound, which is a little over two feet in height, the remains of a human skeleton were found, with which were fragments of a pot and a small chipped implement. I was informed that from each of the conical mounds human bones had been taken. Near the surface of one we found the remains of a skeleton which was probably an intrusive burial. As the park authorities wished to resod and preserve the mounds, care was taken not to disturb the outlines and the earth removed in the explorations was carefully replaced. This is, I believe, the first record of the finding of human bones in an effigy mound, but very few examinations of them have been made of which we have any account.

At the meeting of the American Antiquarian Society held soon after my return from this trip, I gave an extended account of the excursion, of which an abstract is already printed in the Proceedings of the Society. It is therefore only necessary to refer to that publication, and to state here that among the other groups visited the most important were those on both sides of the Baraboo river.

At the foot of the hill on the south side of the river, and within the limits of the town of Baraboo, is a well defined effigy mound in low relief, in the form of a man extended upon the back with the head up the hill; unfortunately the lower part of the legs and the feet have been destroyed by ploughing. From the head to the knees this effigy is eighty-three feet in length. Extending to the north up the hill is a line of conical mounds. On the opposite side of the river there is a large group of works embracing two "long" mounds, three "bird" mounds, a "bear" mound and nearly thirty conical mounds, besides several others of which the outlines have been destroyed.

Near the Lower Dells of the Wisconsin river three very large "bird" mounds were examined, over which an old forest is still growing. On the high ground over the stone quarry at Madison

there is a very interesting group containing, among other forms, well defined effigies of a "bear" sixty-three feet long, a "panther" two hundred and thirty feet long, a "bird" seventy feet long with a stretch of "wings" of one hundred and sixty feet. Arrangements were made with Prof. E. S. HOLDEN of the Observatory at Madison for a careful survey of this group, which has been made and, thanks to his assistance, a plan is now in the Museum.

Under the guidance of Mr. USHER a visit was made to a small cave near West Salem in Wisconsin, of which a description was given in the American Antiquarian for June, 1880, p. 257. This cave is situated in the side of a hill and is a natural formation in the sandstone. It is of particular interest on account of numerous figures of men and animals and several other designs which have been cut upon its walls. It is probable that this work is of comparatively recent origin although the floor of the cave has been covered to the depth of several feet by the sand which had washed in at the entrance. Excavations to the level of an old water bed were made, but nothing was found. During former excavations by the Rev. EDWARD BROWN and others, a bone implement and fragments of pottery were discovered, and Mr. USHER gave to the Museum two potsherds obtained at that time.

For many years it has been my desire to examine the ancient works of the Scioto and Paint Creek valleys, many of which have become so well known from the oft-repeated descriptions and figures given by Atwater in 1820, and by Squier and Davis in their valuable work of 1848. At last the time came, and in company with Dr. C. L. METZ, Mr. C. F. LOW, Judge JOSEPH COX and Mr. KIMBALL, I made the trip in September. A brief account of this excursion also is printed in the Proceedings of the Antiquarian Society, and therefore only a summary of the trip is here given, simply as a Museum record, as many photographs were taken and numerous specimens obtained at the different places visited.

The "Serpent mound," on the land of Mr. JOHN J. LOVETT in Adams Co., is situated on a high bluff on the east fork of Brush Creek and is a singular and remarkable work, unlike any other in the country. The figure given by Squier and Davis, in their Ancient Monuments of the Mississippi Valley, is in general accurate; but we found a few mistakes had been made in the details, the most important of which is in the position of the projections from the

sides of the "head," which are not at right angles as represented in the figure, but are more nearly parallel with the main embankment. Drawings, photographs and measurements were taken of this work; for a more detailed account of which reference is made to the Proceedings of the Antiquarian Society for October, 1883.

The next place visited was the fortified hill in Highland County, known as "Fort Hill," of which an accurate description and figure are given by Squier and Davis. This is in several respects one of the most remarkable of the prehistoric works in the state of Ohio, and has not yet suffered much by the hand of man, thanks to its being difficult of access. Nature has held almost undisputed sway over the works since they were deserted, and forest trees of great age are growing upon the walls and within the enclosure. The walls of this fort are formed of stones taken from the top of the hill and from the ditch made on the inside of the walls. These walls are from eight to fifteen feet high and from twenty to thirty or more feet in width, and they enclose an area of nearly fifty acres. They are carried around the very brow of the hill, forming a continuation of its steep sides. Some conception of the antiquity of the place may be derived from the size of a decayed oak stump still standing upon the summit of the wall, which measures seven by nine feet in its two diameters, nearly three feet from the ground. This is probably the same stump which thirty-seven years ago Squier and Davis reported as having a circumference of twenty-three feet.

Several of the earthworks in the Paint Creek valley described by Atwater in 1820 were visited, but with the exception of some of the largest mounds they have been nearly levelled by ploughing and the cultivation of the land. Even the extensive stone fort on the hill near Bainbridge was reported to be so nearly destroyed that the former position of its walls could only be determined at places.

In the Scioto valley, in the vicinity of Chillicothe, are the famous and still well defined works of High Bank, Hopeton and Cedar Bank. Of these the High Bank works have suffered most by the plough of the farmer. At this place Mr. Milton Jones received us kindly and guided us over the works, tracing out the portions that had been nearly obliterated within his time. At the Hopeton works, and those near by at Cedar Bank, we were much indebted to J. Smith, Esq., for his kind attentions and valuable observations upon the structure of the works, with which he had been

familiar for years. Both the gentlemen named gave to the Museum stone implements which they had collected within these interesting enclosures. We also found numerous objects of interest. To Dr. Miesse and Mr. A. Douglas, jr., of Chillicothe we are indebted for valuable assistance and introductions to the owners of the different works. For some details relating to these earthworks I refer to the abstract in the Proceedings of the American Antiquarian Society; where will be found a few reasons for dissenting from Mr. Morgan's pueblo theory in relation to the High Bank works.

Another excursion was made to the Milford works, on the east fork of the Little Miami river. The square and great circle can still be traced, but their embankments are nearly levelled by long cultivation of the ground, and the parallel walls extending to the small circle on the hill, with the circle itself and the singular diverging walls running from it, figured by Squier and Davis, no longer exist. Several mounds within this work, although much reduced by ploughing, have been explored by Dr. Metz for the Museum, but few important results were obtained.

The opportunities offered by these excursions for comparing the present condition of these wonderful monuments of antiquity with their condition when first described have shown how rapidly they are becoming obliterated. A generation of men has not yet passed away since most of these earthworks were in a good state of preservation; our children's children will look for them in vain unless something is done at once to preserve them. Is it not possible to protect these ancient works before it is too late? Every year that passes without action is one more year allowed for ploughing over and destroying these wonderful works. A few thousand dollars expended *now* for the purchase of those which are best preserved will save monuments that future generations will surely value beyond all price. Shall Fort Ancient, Fort Hill, Hopeton, The Serpent, and many other ancient works in various parts of Ohio be obliterated? Shall such vandalism, such shame, be laid to Americans of this century? If the state will not take action, cannot the cities, or counties, or local societies become the preservers of ancient monuments? And Cahokia, the largest of all the tumuli of the Mississippi valley, must not be omitted when this work of preservation shall begin. Will the great state of Illinois permit this monument of another race to be levelled to

furnish ballast for a railroad; its inevitable fate if left in private hands! Wisconsin, too, should do her part by preserving the most interesting of the effigy groups. By Americans, who have so little of the past to preserve, these works of another race should be regarded with veneration and reverence. Of what value are our recent monuments of stone and bronze compared with these? Would it not be well to form an association for the preservation of ancient monuments?

Besides these explorations in the west, we are indebted to the subscribers of 1882-3 for the means of extending our researches in the southern states to a limited extent. Several more of the stone graves in the ancient cemetery on Dr. JARMAN's farm have been opened by Mr. GEORGE WOODS, who was my foreman during my work there the preceding year, and has assisted me in several expeditions. The examination of this locality therefore has been made more complete, and it is of the first importance to make a thorough exploration of every place where work is begun.

Mr. J. W. EMMERT was also employed to explore a burial mound on Joy Creek in North Carolina, from which he obtained two pipes carved in stone, several stone implements and numerous fragments of pottery. A refuse pile on the bank of the Walango river in Custer Co., Tenn., was also examined by Mr. EMMERT and he there obtained numerous stone implements and fragments of pottery of an interesting type. Mr. EMMERT also explored for the Museum two small burial caves in the cliffs on the Holston river, Tennessee, which proved of considerable interest. The skeletons were so much decayed that only small fragments of bones were found, and the condition of the caves and the accumulations in them, showed that the burials were of considerable antiquity. Among the objects of special interest found were a large pipe made of steatite, a large obsidian core and one arrowpoint of obsidian, a beautiful polished celt made of a green stone, numerous chipped points of flint and several other stone implements; also a perfect bowl of fine reddish clay, pieces of cut antlers and several shell beads.

To Dr. C. C. ABBOTT the Museum continues to be indebted for many valuable contributions from New Jersey. The entries in the catalogue of specimens obtained by him, and by his son RICHARD M. ABBOTT, cover more than two hundred numbers and embrace nearly a thousand specimens received during the year. Among them is an interesting collection from Somer's Point, a

locality from which we had not before received specimens. It is greatly to be hoped that the Museum will still be able to allow Dr. ABBOTT the small sum he will require for expenses incident to his collecting. His constant efforts in behalf of the Museum have resulted in bringing together a very large and complete collection from a limited region, in arranging which for exhibition I hope to have his assistance during the present year.

Supplementary to the Abbott collection from New Jersey is the HENRY R. BENNETT collection from Delaware, of which mention has been made in former reports, and I now have the pleasure of stating that Mr. BENNETT has added more than three hundred stone implements to this already large collection during the past year. It is my hope to have this also on exhibition by the side of that from New Jersey during the present year, as well as all our other specimens from the eastern Atlantic states.

Mr. LEWIS CABOT has continued to remember the Museum during his annual trips to North Carolina and has brought to us a very interesting lot of arrowpoints and other implements during the past year.

Among several other contributions from the Atlantic states I must call special attention to the little collection of rude forms found by Mr. ALBERT I. PHELPS in Revere, Mass., on a ridge back of the beach, and to a second lot from Marshfield from Mr. G. B. FRAZAR, all of which seem to have been made from beach-pebbles. To Mr. FRAZAR we are also indebted for a peculiarly interesting series of over two hundred chipped points and as many flakes, found by him on the shores of Lake Monroe, Florida, during the low water of the past summer. These specimens are all made from various forms of silicious stones, probably found in some part of the state. Many of these are fossilized corals, agates and other chalcedonic varieties, of different colors, giving to the collection a beauty and variety of color not often met with to such a degree in stone implements.

Mr. JOHN CONE KIMBALL has obtained a number of specimens from Brookfield, Mass., and other towns in its vicinity, by interesting the farmers in the objects and work of the Museum. Should his example be followed by other gentlemen in various parts of the country, many interesting specimens could be added to the Museum, which in most cases would otherwise be lost.

As is well known to you, my honored predecessor, the late Dr.

Jeffries Wyman paid particular attention to the shellheaps of the Atlantic coast, and brought together a series of objects, illustrative of the primitive habits and arts of the Indian tribes from Florida to Maine, leaving an unrivalled collection of material at the Museum. It will therefore give you pleasure to know that the constant efforts which have been made to maintain the character of this collection have met with remarkable success, and that thousands of objects have been added to it during the past few years from shellheaps not before represented. During the past year the additions have been of particular value, thanks to Mr. Albert I. Phelps, Mr. A. T. Gamage, and Mr. James E. Knowlton, all of Damariscotta, Maine. These gentlemen have given attention to this subject for several years, and Messrs. Gamage and Phelps especially have made extended trips to points along the Damariscotta river and Muscongus sound where, as stated in the last report, I also made an extensive exploration in their company. Messrs. Gamage and Phelps have presented their entire collections to the Museum, and Mr. Knowlton has given a portion of his, so that we possess from this region a series of objects made of bone, stone and clay which is unsurpassed, and of great importance in drawing a picture of Indian life on our New England coast from an unknown period in the past down to the time of contact with our race. The evidence of this contact, during the time the shellheaps were still being formed, was mentioned in the last report, and the labors of Mr. Phelps during the past season have confirmed the statements there made, as he has, in several instances, found iron implements and clay pipes of European make in the upper layer of shells, but in no case have European objects been found at a depth of a foot in these deposits.

In 1879, Miss Franc E. Babbitt of Little Falls, Minnesota, made the important discovery of stone implements and chips of quartz at the depth of fifteen feet in the gravel forming the modified drift on the banks of the Mississippi river at Little Falls, Morrison Co., Minn. Since then she has made repeated examinations of the gravel, and has taken out many specimens of chipped and worked quartz from the same stratum, all of which were found in a very limited area. A series of the specimens was exhibited at the Minneapolis meeting of the A. A. A. S., in connection with a paper giving a full account of her work and containing a statement on the geological conditions by Mr. Warren Upham, an assist-

ant to the state geologist. In this account Mr. UPHAM gives his testimony to the discovery of the implements by Miss BABBITT in the modified drift, and we therefore owe to her the knowledge of the existence of man at that early period in the Mississippi valley, another of the facts which are slowly but surely pointing to the great antiquity of man on our continent. After the meeting, Miss BABBITT most kindly presented the whole collection on exhibition to the Museum, and since its arrival I have again examined the specimens, and have no hesitation in pronouncing a large proportion of them the work of man. Some are simple chips or flakes, split off in the process of working the stones into shape. Others are pointed pieces of quartz, possibly with natural fractures, but which have received a few finishing blows from the hands of palæolithic men. A few others, including one or two not of quartz, are evidently natural forms, but in the collection are about a dozen of unquestionably chipped implements, which, except that they are made of quartz[1] instead of argillite, closely resemble the palæolithic implements found by Dr. ABBOTT in the New Jersey gravels. For the present I refer for further details to Miss BABBITT's paper now in course of publication by the American Association for the Advancement of Science.

In a more distant region, we are also obtaining further evidence of the antiquity of man near one of the centres of his highest development on this continent. For six years Dr. EARL FLINT has been an enthusiastic worker in Nicaragua for the Museum, and at small pecuniary outlay on our part has furnished the Museum with what is probably the most important collection ever made in that country. He has, in a very thorough manner and at great personal inconvenience and trial, explored several caves, copying with care the many inscriptions on their walls, and digging below the accumulations on their floors to discover the facts which prove their antiquity. He has dug into immense shell-heaps on the coast and sent us large series of the objects secured, among them many species of shells, some of which he thinks are now extinct on the coast. He has explored burial mounds of large size, and burial places of different kinds and of various periods, many belonging to remote times and others to the

[1] Since this report was presented Dr. Abbott has sent to the Museum a chipped implement of quartz, of identical shape and character of chipping, with two in the Minnesota collection, which he found in place in the Trenton gravel.

period since contact with the Spanish. From these sources we have received hundreds of objects made of clay, many ornaments of shell, bone and stone (the latter including several made of jadite), stone implements and other things of importance. The pottery is of particular interest, from the many great shoe-shaped burial jars to the highly decorated dishes and bowls, and the numerous carved and moulded images of men and animals. The description of these will be printed at some future time with Dr. FLINT's account of their discovery contained in his extensive manuscript journal already received. To him also we are indebted for three idols from Nicaragua. These idols are carved from large masses of basalt and represent the human form. The two larger are each about five feet in height and have recently been mounted in the main hall of the Museum. The taking of idols and other antiquities from the country has now been prohibited by law, but, thanks to the PRESIDENT of Nicaragua a special permit was given to Dr. FLINT to continue his work for the Museum for the present. During the exploration of a stone-enclosed burial place on Deadman's island in Lake Nicaragua, a spherical burial jar was found containing decayed human bones. With these bones were several long glass and polychrome beads of old Venetian patterns, and two gold ornaments identical in pattern and method of manufacture with those found in the graves at Chiriqui. The beads of course prove that the burial in question took place after the Spanish conquest and they prove also the use at the time of gold ornaments of the character described. The scarcity of these ornaments in Nicaragua, however, seems to indicate that the original source of these two specimens was Chiriqui. In another burial place or stone-covered mound, apparently of great antiquity, Dr. FLINT has found several iron or steel implements.

It has been remarked that the present natives of Nicaragua continue to use metates or grinding stones of the same character as those found in the burial mounds, and this might be taken as an instance of the survival of ancient forms and peculiar art, had not Dr. FLINT in his manuscript called attention to the fact that the sources of supply of these essential domestic utensils are the old burial mounds, which are dug into regularly to procure them, and large numbers of elaborately carved metates are thus obtained.

Under date of December 24, 1883, Dr. FLINT has notified me of what seems to be another fact in relation to the antiquity of

man. It is no less than the finding of imprints of human feet in volcanic rock between fourteen and fifteen feet from the bottom of the surface soil The foot-tracks are in several series, going east and west nearly parallel with the border of Lake Managua, but about 300 feet from the present shore. Immediately above the footprints is a bed of clay and volcanic material containing fossil leaves, and over this are four distinct beds of volcanic material. A box is now on the way containing four of these ancient footprints, two of which were cut from the rock by Dr. FLINT who has sent also masses of the layer containing the fossil leaves.[1]

Leaving the topic of the antiquity of man, I will call your attention to the instructive researches which Miss ALICE C. FLETCHER has been making during the past year among the Omahas, Winnebagoes and Poncas, notwithstanding her long prostration by a painful attack of inflammatory rheumatism which confined her to her couch at the Winnebago Agency for nearly six months. During all that time interest in her work never flagged and she has gathered many stories, legends and accounts of ceremonies and customs of the Indians which will prove of great interest. Of this the papers printed in these reports are sufficient guarantee.

As Miss FLETCHER had visited the ancient cemetery at Madisonville, Ohio, and personally explored some of the singular ashpits of that place, she at once was reminded of them on learning of some of the past customs of the Omahas, and wrote me the following letter, which certainly throws light upon the possible

[1] Since this report was put in type the blocks of rock containing the footprints have been received, and with them several small masses of the clay and tufa with the fossil leaves and grasses from the bed above the lava-rock containing the footprints. That the imprints were made by the feet of men, while the material of which the rock is formed was in a plastic condition, there is not the least doubt. The imprints are from 9 to 10 inches long, and about 4 wide across the ball of the foot, and all are highly arched. A paper cast taken of one of the imprints shows that it is a perfect impression of a naked foot, with heel, ball and toes perfectly distinct. The four imprints received are those of two, and possibly of three, individuals. Two are of right feet and two of left. One is much deeper than the others and was made while the material was in a different state of plasticity, as the impression has forced the substance outward so as to form a ridge about the imprint. Dr. Flint states that the stride was only from 11 to 18 inches, which indicates slow walking over the plastic substance. Of course only a careful geological study of the locality will furnish data as to the age of these remarkable impressions, but there can be no doubt that they were made long before historical times. It is possible that the fossil leaves will give a clew to the geological age of the deposit, and it is my hope that Prof. Lesquereux will report upon them.

origin of the Madisonville pits, although there are a few points which must be considered regarding their being ancient caches. First, the circles indicating the sites of lodges are at some distance from the pits; second, the thousand and more pits underlie an extensive burial place where about fifteen hundred skeletons have been discovered. It may be that successive tribes have inhabited the place and that the last occupants used the site of a former town for their cemetery while their own town was farther up the hill. This supposition would agree with the condition of things already noticed in former reports, but we must also recall the fact that the makers of some of the ashpits disturbed human skeletons buried deep in the clay which indicates that there were three distinct periods of occupation of this particular point of land. All things considered, we can but agree that Miss FLETCHER'S account of the caches of the Omahas suggests the most plausible theory which has been proposed to account for the Madisonville ashpits.

Winnebago Agency, January 15, 1884.

DEAR PROF. PUTNAM:

The following has come to my knowledge and may or may not throw light on the Madisonville ashpits.

The Omahas always lived in permanent villages of mud-lodges and the site of a village remains the same for a long time, only changed by some great disaster. Each mud-lodge was occupied by one or more families, sometimes as many as four or five. The lodges were often quite large and could hold a company of two or three hundred. Each family had outside the lodge a cache, and some of the families would have two. These caches would be used sometimes for two or three years, but after a time the posts would become worm-eaten or the rain get in and if the cache was not repaired, as it occasionally was, a new one would be built close beside it and the old one taken for other uses to be described. In the cache was kept the winter supply of corn, dried meat and other provisions, and the gala dresses and ornaments of various kinds. These were kept in par-flesh packs; also the sacred articles, such as medicine bags, or sacred bowls, etc. When a village was attacked it was always considered important to try and burn the caches. Fire was put in the cache and the articles consumed in the hole; sometimes they were only charred. A malicious person having a grudge would sometimes take revenge by burning a cache.

The old caches were used for ashpits. The accumulations of ashes in the centre fireplace (a circular depression in the centre of the lodge) would be cleared, and the ashes thrown in the pit. So also the bones and refuse of eating, and of feasts, and the broken implements and weapons,

worn-out moccasins, and other articles. When the pit was filled up it was closed over and another one taken. The sites of the old villages are honeycombed with these caches, the Indians say, and I am invited to examine them if I like, the Indians laughing heartily at my queer curiosity.

This account applies in several particulars to the Madisonville site. Indians of the village class love to haunt old sites, and will return over and over again to the old home after being driven away.

Sincerely yours,

A. C. FLETCHER.

To Mr. J. SUTTON WALL we continue to be indebted for photographs of the picture-rocks found in Pennsylvania and West Virginia. The last one received was accompanied by the following description:

Monongahela City, Pa., Sept. 11, 1883.

Prof. F. W. PUTNAM, Peabody Museum:

My dear Sir;

I send you by this day's mail one copy of photograph from tracing of the "Hamilton Picture Rock," which is located on the Hamilton farm, close by the north side of the Evansville pike, six miles southeast from Morgantown, West Virginia. The rock is a sandstone, and rests about seventy-five yards beyond the crest of the hill east of the Hamilton residence. The north edge of the pike passes over the south edge of the rock. There are quite a number of similarly exposed rocks distributed over the same ridge, which to all appearances are just as well adapted to carving purposes, as this one, but on only one of them (situated about fifty feet from the one I copied) did I find a figure, and that figure was the outline of a standing tree, showing the base, trunk and limbs, as herewith figured.

Figure 2 feet high.

The outlines of the animals represented on the carved rock are formed by incised lines, from a half-inch to an inch in width, and from a quarter to three-quarters of an inch in depth. They are quite uniform and smooth in finish, and have the appearance of great age.

Mr. Thomas McBee, who lives in the neighborhood, informs me that they were much more distinct forty years ago than they now are, owing, as he says, to the fact that a few years since, the woodsmen in clearing out the adjacent land, piled up and burned the brush and refuse portion of the timber on the surface of this rock, which has caused the surface to scale off considerably, and thereby lessen the depth and distinctness of the carvings; and, indeed, the surface of the rock does present something of that appearance.

You will notice that I have numbered some of the figures on the photograph. I did this for the purpose of aiding in the following description

which is the result of my conclusions as arrived at in examining the figures as they appear on the rock.

Figure 1 represents the outline of a turkey; 2, a panther; 3, a rattlesnake; 4, human form; 5, a spiral or volute similar to that mentioned by Professor Rau, on page 11, of Vol. V of the Contributions to American Ethnology. Figure 6 represents the impression of a horse's foot; 7, that of a human foot; 8, the outline of top portion of a tree; 9, the impression of a human hand; 10, that of a bear's fore foot, but lacks the proper number of toe marks.

Figure 11 represents two turkey tracks going in opposite directions.

Figure 12 has some appearance of a hare or rabbit?

Figure 13 represents the impression of a bear's hind foot, but lacks the proper number of toe marks; 14 represents the outline of an infant human form, with two arrows in the right hand?

Figures 15 and 16 represent two of the cup-shaped depressions, similar to those mentioned by Professor Rau.

Figure 17 represents the outline of hind part of an animal.

Figure 18 might be intended to represent a horse's footprint, were it not for the line bisecting the outer curve. Figures 19, 19, represent buffalo and deer tracks.

Now it occurs to my mind that the footprint of the horse on this rock, as I have found it, is a matter of some importance, at least in a chronological point of view, if the matter can be definitely determined.

The person who made that figure could certainly not have made so close an imitation without first having seen a horse's track, which circumstance would bring the age of the carvings within the last four hundred years, or else fix it at a time corresponding with the mastodon, American elephant and ox.

Very respectfully yours,

J. Sutton Wall.

For the numerous gifts of specimens received during the year I must refer to the list of additions to the Museum for 1883, printed on the following pages and covering several thousand objects under the 2988 entries in the catalogue. For gifts to the library I also refer to the list of additions, where are recorded the names of 117 contributors; the additions for the year being 216 volumes and 267 pamphlets.

I will, however, make special mention of the interesting collection of weapons, feather garments, gourd dishes, and other native work of the Amazon Indians; and of the grass-cloth garments, basket work, carvings on wood and ivory, trumpets made of elephants' tusks, and numerous other objects of native workmanship from Southern Africa, which were collected by the late Capt. John B. Sparhawk and presented by Mrs. Sparhawk.

The fine series of fragments of pottery from several shellheaps in Japan, presented by the University of Tokio through Prof. E. S. Morse, is such a valuable addition to our previous collection illustrating the shellheaps of that country as to be worthy of special mention.

From Mr. Alexander Agassiz we have received an interesting series of articles made by the Mayas of Yucatan.

To Mr. Stephen Salisbury, jr., we are indebted for two delicately chipped specimens of arrowpoints which were found by Dr. Le Plongeon in a stone vase near the famous buried statue of Chaac-mol. These points are unlike any in the Museum. One is made of a white chalcedony and the other of a green variety resembling jadite. They are beautiful specimens of the art of stone-chipping by the builders of the ancient edifices of Chichen Itza.

Capt. Nathan Appleton has given to the Museum a large silver ornament which was given to him by a friend who obtained it in Peru. It is made of hammered silver and is in the form of a large disk-pin, resembling those of bronze which were obtained in the same country and presented several years since by Mr. Agassiz. Capt. Appleton also has given us one of the little gold bells and several stone implements obtained from the graves in Chiriqui.

During his visit to Panama he obtained from Mr. J. A. McNiel, the well known collector, nearly four hundred specimens of pottery from the Chiriqui graves for exhibition in the Panama department of the Foreign Fair lately held in Boston. Appreciating the importance of placing the collection in some public institution where it would be made useful in the study of early American art, Thomas G. Appleton, Esq., of Boston, united with Capt. Appleton, in presenting the entire lot to the Peabody Museum where it now is arranged in the room which will be opened to the public in the spring.

A study of this pottery shows that it can be grouped as follows: —

1. Jars, or water bottles, with conical or rounded bases and constricted necks. These, with few exceptions, are colored, and nearly all were smoothed, or stone-polished, before the first baking. The colors were put on afterwards and have been made nearly permanent by a second slight baking or heating. The decoration is generally of two colors. On a small number, however, red, yellow and black are combined in the ornamentation, and on a few

one color only has been used as a thin clay-wash. The patterns are generally in zones or bands; the most simple consisting of a yellow, red or black band around the upper half of the jar, or of two bands dividing the jar into three portions vertically, the central portion including the mouth of the jar. A higher type of ornament is a broad band of yellow or red, on a contrasting ground-color, extending around the upper portion of the jar, on which are various designs of another color, as red or black on a yellow band, yellow or black on a red band; or the band may be defined by black lines between which are figures in black on a red ground. The designs in most cases are made up of horizontal, vertical, and oblique lines, sometimes enclosing dots; occasionally of zigzags, by the extension of one line beyond the two adjacent in a group. On a few specimens there are combinations of curved lines forming scrolls or waved figures; in two or three instances covering the whole of the jar below the neck. In another group the ornamentation consists of arched lines, with their bases on the band encircling the central portion of the jar, and so arranged as to form a symmetrical ornament on the sides, or to divide the upper zone into three portions. A still higher type consists of three slight bosses made just above the centre of the jar and each boss ornamented by central and surrounding dots and lines. On one jar bosses in the form of two coiled serpents are moulded on opposite sides.

2. The next group consists of small cooking vessels, or pots, with two handles generally connected with the lip. These are of the usual form common in all stages of the ceramic art. The majority of these pots are simply colored red, but on a few there are bands of another color on the red ground. The handles generally are plain or simply ornamented by notches on the upper portion. There are, however, several in the lot with handles which are more elaborate, and on some they are not attached to the lip of the vessel, thereby giving a more pleasing sense of proportion. In these handles the surface has been broken by deep and symmetrical notches or lines cut in the clay, or a combination of plastic and incised work has resulted in rude representations of the human form. The limbs of these figures are entirely out of proportion, and there is little in the work showing a true perception of realistic art; it is rather rudely grotesque.

3. Of a form between the jars and the cooking pots are numer-

ous specimens which probably were used for holding and serving prepared food and drink. These are globular in shape with small mouths, like the jars in the first group. In general they are more highly ornamented than the jars, both in plastic work and in color. Many are furnished with carved handles of human form; others have two animal heads projecting from opposite sides just above the central portion of the jar; on some there is a single head, and a few have a head on one side and a tail on the opposite. Some of these vessels are ornamented with colored figures similar to those on the jars, and a few have a plastic ornament around the neck, which is gracefully incised and adds much to the beauty of the vessel. On the sides of some, instead of the human form, are little modelled figures of toads and lizards. Such ornaments were luted to the vessel.

4. Another group of vessels can be described briefly as jars with wide-spreading lips united to the sides of the vessels by broad handles which in some cases are carved. Jars of this pattern generally are ornamented in color, but a few in the lot are of plain unpainted clay.

5. Several plain dishes and cups of small size are comprised in this group, one of which stands upon a hollow base, or rim, out of which pieces have been cut. Some of the jars from the mounds in Missouri and Arkansas have similar bases.

6. This group embraces the tripods, but there are several subdivisions in it. The simplest are those which evidently were used for cooking or heating food. These are in all respects the same as the wide-mouthed cooking pots with the addition of the three legs or feet. These tripods apparently are the result of a happy thought of some ancient cook, who attached permanent feet to the pots as a substitute for the stones or lumps of clay which were required to prevent the pots with rounded bottoms from rolling over and spilling the soup while over the fire.

From these pots with simple feet the development of the potter's art can readily be traced through the various stages of utility and ornamentation, and we find the feet added to cups and to vessels of spherical forms, embracing the several shapes and particular designs already noticed.

The feet of some are solid, slightly curved and pointed masses of clay, of others they are hollow and contain little clay balls which of course were dropped in before baking the vessel. These feet

have offered a fine opportunity for the display of the sculptor's art, of which many grades are shown, from simple curved lines and notches to the representation of the human form. Several feet are carved to represent a child done up in cloths, as if tied to a cradle board, with the head free but the arms and feet strapped down; the effect being increased by a narrow band of clay wound over the body. On others only the human face is shown, and in these cases the vessel must be inverted in order to show the face in a natural position. Among these tripods are many which have not been colored, and as it is evident that new vessels were often placed with the dead, it is probable that in these instances they were used in that way directly after the first baking.

It is not possible in this brief notice of the collection to give an account of all the forms and varieties, and I will only mention in addition that very few specimens in the collection have an ornamentation made by incised lines, and these only of the most simple kind, consisting of a row of lines in small groups cut about the neck of a vessel.

As a type this Chiriqui pottery is easily recognized, and it has little affinity with that from either North or South America. Of course many of the forms are the same, but such are of cosmopolitan types which are not to be considered when tracing affinities. To that of Nicaragua it approaches more nearly than to any other group, but with this even it would not be confounded by one familiar with the pottery of the two regions. Tripods are common in both regions, and also in Yucatan and farther north in Mexico, but the ornamentation and even the forms, as a whole, differ in each locality. In its development the Chiriqui pottery seems to be intermediate between that of the northern and southern nations, as its makers were in their geographical position, and while there are some traces of a common art in the three regions, there are differences enough to show that each had a distinct development even if founded upon one original type.

The Museum has been kept open from 9 A. M. to 5 P. M. on week days, as heretofore, and the number of visitors increases from year to year. It is evident that many persons come to Cambridge especially to see the Museum, while of course the other attractions of the University bring many casual visitors.

During the past year several special parties have come for educational purposes, among them a class from the Boston University;

and Mr. C. E. Ridler, Master of the Kingston High School, with sixty of his pupils. When notice is given of such visits it is always my effort to make them as instructive as possible, but generally too much is undertaken by the visiting parties, and the results would be of more benefit to them if they limited their examinations to one or two rooms at a visit, or only took a general glance at the whole and afterward gave their attention to the different departments in a series of visits. When I can do so I always urge this upon any school or class, for experience has shown that otherwise only a confused idea is obtained of the whole and little of importance is stored away in the brain for future use. Sometimes the same persons have been noticed at the Museum day after day, and when questioned they have stated that they were trying to study all that was spread before them. The approval of such visitors shows that the Museum has attained importance in an educational way.

Last year Dr. W. C. Barrett, the well known dental surgeon of Buffalo, passed several days at the Museum in examining the teeth of the various races represented by our collection of crania. He since has published an article in the "Independent Practitioner" for October, 1883, under the title of "An examination of the teeth of certain prehistoric American Races," in which he presents his conclusions, with many interesting details, drawn from his study of the crania in the Museum.

Beginning his studies of these old skulls with the generally taught belief that the majority of existing dental diseases were due to the changed condition of man in civilization, he has been forced to change his view and makes the following emphatic statements.

With the exception of syphilitic diseases, there is not to-day an oral trouble with which all these nations were not familiar in its most exaggerated form.

In the jaws of all the people whose skulls I examined, I found traces of all the diseases known to modern dentistry. There was caries of the most formidable character, black, white and brown. There were marks of abscesses which devastated great regions of tissue. There was necrosis which had caused the loss of great sloughs of bone, though I must admit that necrosis was more rare than most other oral diseases. There were great masses of tartar enveloping all the teeth in the jaw. There were indications of all kinds of inflammation of soft tissues. There were

exostoses and hypertrophies, absorptions and malformations, denudations and abrasions, exfoliations and irregularities.

The following statements relating to the ancient Peruvian skulls from Ancon, and those from the stonegraves in Tennessee are of interest in connection with other studies upon these races:

Of the Peruvian skulls of adults of various ages, I made examinations, more or less careful, of two hundred, taking them as they came, and making no selection. I think they were a fair average of the whole. Of these, seventy-four had lost some of their teeth during life. Forty-three only, so far as I could discover, possessed a perfect dentition and gave evidence of healthy mouths. One hundred and two presented indications of oral diseases. The remainder were in such a state that it was impossible to determine their condition at death. Thirty-one showed extensive absorption of the alveolar process, due probably to various inflammatory conditions. In thirteen cases I found the marks of deep alveolar abscesses which had caused extensive wasting of the osseous tissue. How many others there were, not of sufficient severity to leave indelible traces upon the bone, it is impossible to say. In two mouths I found supernumerary teeth, and in two there were exostoses so great as to be visible. It will readily be understood that, as the remaining teeth were usually firm in their sockets, ordinary hypertrophies were undiscoverable without mutilation of the specimens. In fifteen cases there was no sign of the presence of wisdom teeth, nor of their loss. Seventy-two dentitions were extensively worn, some of them nearly even with what must have been the border of the gums. In five instances the wisdom teeth were in appearance but rudimentary. In eighteen cases the wisdom teeth occupied an abnormal position through lack of room for their development, and this, notwithstanding the usually massive character of the maxillæ. There were four cases of decided irregularity, not counting unimportant deviations from the normal. There were scarce any dentitions that were entirely free from tartar, and some of the mouths contained large masses of calcareous incrustations. There was at least one case of an almost complete calcification of the pulp. How many others, only an examination of the pulp chamber could determine.

Of the ancient mound-builders of Tennessee I examined the skulls of seventy-five. Of these, twenty-seven could be set down as probably free from dental diseases. Thirty-two had carious teeth. There were seven cases of extensive alveolar abscess. Twenty-two had lost teeth during life, and the consequent absorption had obliterated all trace of their existence. Twelve cases showed extensive absorption about existing teeth. There were two cases of visible exostoses, two apparently rudimentary wisdom teeth, and three irregular dentitions. Only seventeen showed depositions of tartar, and but thirteen gave evidences of much wear.

It will be seen that the teeth of the mound-builders were much more free from calcareous incrustations, and less worn than those of the inhabitants of Peru. This was doubtless owing to their living more largely upon an animal diet. There were less cases of irregularity because they were a larger and more muscular race, with broader, stronger jaws, but the proportion of diseased dentitions did not vary greatly.

Mr. CARR has continued his historical researches during the year and is engaged in tracing out several of the customs of the Indians during the early years of their contact with the whites. I have alluded to his publication on the historical evidence he has obtained relating to the Indians as agriculturists, sun-worshippers, and builders of mounds.

Miss SMITH has continued to perform her work as librarian and general executive assistant and secretary, and has made all the entries in the catalogue for the past year.

Miss STUDLEY has been intrusted with the arrangement of the osteological collection in the upper hall and adjoining room, in which she has made good progress.

Mr. CHICK has continued to give his efficient services in many ways and among other things has perfected a stand for the proper mounting of crania, so that each skull, or portion of a skull, no matter how frail it may be, can now be exhibited in its natural position, without making holes and wiring the bones. The importance of this stand will be readily appreciated by all who have the care of such a collection.

The cases in the European room, mentioned in the last report, have been completed and the arrangement of the room is in progress; the Danish collection is already in its place, and in a short time this room will be opened to the public. The completion of the cases, during the present month, in the first and second hall-galleries, will permit the arrangement of the Alaskan objects and the exhibition of the small Egyptian collection. The removal of a part of the latter from its temporary quarters in the Mexican gallery will give room there for the numerous Mexican specimens received during the past two or three years.

The old cases have all been transferred to the upper floor and are being filled with the osteological collection. The work of furnishing the only remaining exhibition room will be carried on as fast as possible, and it is probable that by the next annual

meeting every available space will be occupied by a case. After another year, therefore, it is probable that one-half of the income of the building fund can be added annually to the principal; but shall we have to wait for the slow accumulation of income to obtain the means to erect the next section of the building, the foundation of which cannot be laid too soon?

Respectfully submitted,

F. W. Putnam,

Curator of the Museum.

Cambridge, Feb. 18, 1884.

LIST OF ADDITIONS TO THE MUSEUM AND LIBRARY FOR THE YEAR 1883.

ADDITIONS TO THE MUSEUM.

30163 — 30228. Blow gun and arrows; bows, and arrows with bone and wooden points; pipe stems; feather ornaments for the head, neck, arms and legs; painted cups and dishes made of gourds; and pottery vases, bottles and pitchers painted in different colors, from the Indians of the valley of the Amazon. Mat, cap, and mantle of grasscloth; trumpets made of elephant tusks; numerous carved articles in wood and ivory; neck ornament of silver; sword with a scabbard of rawhide; a small basket, an ornamented box and an ornamented gourd from Loando, southwest coast of Africa. Bracelets of elephant tusks; gilt armlet and bangle of European workmanship, from western Africa. All collected by JOHN B. SPARHAWK. Piece of marble from the floor of the Temple at Ephesus, collected by LEMUEL CAPEN, and a necklace of shell, teeth and whalebone, the locality of which is unknown.— Presented by Mrs. JOHN B. SPARHAWK.

30229. Carved wooden paddle from the Hervey Islands. — Presented by Dr. W. STURGIS BIGELOW.

30230 — 30319. Fragments of pottery from shellheaps in Japan. — Collected by the students of the UNIVERSITY OF TOKIO and presented by the UNIVERSITY.

30320. A colored sash, worn by the Chippeway Indians. — Collected and presented by Prof. JULES MARCOU.

30321. Arrowhead of stone from Newburyport, Mass.— Collected and presented by Mr. ALFRED OSGOOD.

30322. Grooved stone axe from Trenton, N. J.— Collected by RICHARD M. ABBOTT and presented by EBEN PUTNAM.

30323 — 30325. Iron hoe from a mound on Halifax river, Florida; broken arrowhead and a flake of jasper, both found six feet deep under sand on banks of Mosquito Inlet, Florida.— Collected and presented by Mr. J. H. FOWLER.

30326. Large earthen bowl, red and black decoration, from a ruin near the Moqui Pueblos, Arizona.— Presented by Capt. CHAMBERS MCKIBBIN, U. S. A.

30327. Fragment of soapstone pot from New Mexico.— Collected and presented by Col. THEODORE S. CASE.

30328 — 30329. Stone arrowheads from Santa Cruz river, Patagonia.— Collected and presented by Capt. WEAVER.

30330 — 30332. Stone arrowheads from a field on Doe Creek, near Gainesboro, Tenn.— Collected and presented by Mr. JAMES D. PARK.

30333. Stone chips from Coffin's beach, Annisquam, Mass.— Collected and presented by Dr. M. E. WADSWORTH.

30334 — 30335. Broken stone pestle, and a rubbing stone from Prospect Avenue in the Cambridge Cemetery.— Collected by Superintendent CHILDS, and presented by Dr. S. W. DRIVER.

30336. A long stone pestle, from Brookfield, Mass.— Collected by Mr. MARTIN MULVEE, and presented by Mr. JOHN CONE KIMBALL.

30337 — 30348. Stone gouge; rubbing and smoothing stones; scraper and knife of slate; arrowheads of stone, and an oval stone with lines cut on it, from the farm of P. Hall, New Braintree, Mass.— Collected and presented by Mr. P. HALL.

30349 — 30359. Stone pestle and hammerstones; rude stone points and arrowheads of stone, found on the farm of Lyman Draper, Brookfield, Mass. — Collected and presented by Mr. LYMAN DRAPER.

30360 — 30370. Stone arrowheads, from Bales' Mills, Lee County, Va. — Collected and presented by Mr. JOHN H. BALES.

30371 — 30377. Large silver ornament in the shape of a pin, from Peru; a golden bell from an ancient grave in Chiriqui; stone celt and several vessels of pottery, collected by J. A. MCNIEL from ancient graves at Divala, Chiriqui.— Presented by Capt. NATHAN APPLETON.

30378 — 30391. Rope, bag and fibre of the maguey; basket braided from palm; sandals; gourd cups, wooden sugar bowl; batidor for chocolate; steel machete; steel axe, an iron point, and a piece of turned wood, made and used by the Mayas of Yucatan. Hair of a Bosjeman from Africa.— Presented by Mr. ALEX. AGASSIZ and the MUSEUM OF COMPARATIVE ZOOLOGY.

30392. Knife and sheath from Assouam, Egypt. — Collected by Mrs. HELEN BIGELOW MERRIMAN and presented by Dr. SAMUEL A. GREEN.

30393. A wampum belt of the Mohawks.— Collected and presented by Mrs. ERMINNIE A. SMITH.

30394. Chinese New Year's card.— Presented by Mrs. F. W. PUTNAM.

30395. Cranium, believed to be of a Mexican Indian, from the Cemetery at Monterey.— Collected in 1848, and presented by Dr. A. E. HEIGHWAY.

30396 — 30420. Grooved axes, a celt and spearpoints of stone; perforated stone ornament, and arrowheads of stone from Miltonville, Butler Co., Ohio; part of a perforated stone ornament from Winchester, Preble Co., Ohio; scrapers, knives, spearpoints and arrowheads of stone from Boone Co., Ky.; stone arrowheads and fragments of pottery from the largest shellheap on Blennerhassett's Island; rude stone implement from Guilford, Dearborn Co., Ind.; stone arrowhead from shellheap near Fort Gates, Florida, and an arrowhead from the Falls of the Willamette, Oregon.— Collected and presented by Rev. J. P. MACLEAN.

30421 — 30439. Rude stone axe, a celt and arrowheads of the same material from Darrtown; stone celt and arrowhead from Paddy's Run;

broken slate ornaments from near the earthworks, called "Cheraw Fort," in Oxford township, and a shell bead from Milford township, all in Butler Co., Ohio.— Collected and presented by Dr. H. E. TWITCHELL.

30440 — 30466. Stone arrowheads from a mound on top of a high bluff near McGregor, Iowa; a grooved stone axe, a hammerstone, drill, knife and arrowheads and fragments of pottery from localities near Prairie du Chien, Wis., and Elkport and McGregor, Iowa.— IN EXCHANGE.

30467. A notched rubbing stone, from Houghton Pond, Milton, Mass. —Collected and presented by Dr. M. E. WADSWORTH.

30468 — 30475. Stone flake, points, knife and a square chipped stone, from Revere Beach, Mass.—Collected and presented by Mr. A. I. PHELPS.

30476 — 30527. Stone axes, celts and points of different sizes and shapes; earthen pipe, and fragments of pottery; teeth of animals; shell beads and perforated shells, and a conical stone of unknown use, from a mound on Joy Creek, Madison Co., N. C.; grooved stone axe, and stone celts, mullers, knives, spearpoints, and arrowheads; fragments of steatite pot, and of stone ornament; a steatite pipe and fragment of another; cut piece of antler; and shell beads; all found with decayed human bones in a cave on the Holston River, Sullivan Co., Tenn.— Collected by J. W. EMMERT and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882-3.

30528 — 30575. Harpoonpoints and implements of bone of different forms, teeth of animals, chipped stone implements and a stone celt; fragments of pottery; piece of sheet copper; pieces of clay pipes of European manufacture; oyster shells and pieces of antler showing marks of cutting, from shellheaps near Damariscotta, Maine; chipped stones, rude and unfinished implements and arrowheads, scrapers and flakes of the same material with fragments of pottery, all from the sand ridge back of Crescent beach, Revere, Mass.— Collected and presented by Mr. ALBERT I. PHELPS.

30576 — 30577. Arrowheads of green and white chalcedony, both very thin and delicately chipped, from Chichen Itza, Yucatan.– Collected by Dr. AUGUSTUS LEPLONGEON, and presented by Mr. STEPHEN SALISBURY, jr.

30578. Indian saddle, made of wood, deer's antler and raw hide, from Smoky Hill River, Wallace Co., Kansas.— Collected by Mr. GEO. R. ALLAMAN, and presented by Mr. SAMUEL GARMAN.

30579 — 30616. Hammerstone; chipped flints, a scraper, spearpoints and arrowheads also of flint; fragments of shells, pottery and bones from Lovett's farm on Brush Creek, Adams Co., Ohio, — probably the site of a village or a burial place — near the Serpent mound.— Collected by F. W. PUTNAM AND PARTY, and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882-3.

30617. Chipped flint knife from Lovett's farm, near the Serpent mound, in Adams Co., Ohio.— Collected and presented by Mr. JAMES H. LOVETT.

30618. Carved stone pipe, animal head, from a mound near Bainbridge earthworks on Paint Creek, Ohio.— From the SUBSCRIBERS TO THE RESEARCH FUND OF 1882-3.

30619 — 30625. Stone arrowpoints, flakes and knives from Bainbridge, and Hopetown earthworks in Paint Creek and Scioto valleys respectively.

— Collected by F. W. PUTNAM AND PARTY and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

30626 — 30637. Stone celt, arrowheads, and broken ornament of the same material from about the Hopetown works, Ohio.— Collected and presented by Squire J. SMITH.

30638 — 30641. Stone celts and points from the earthworks near Highbank, Scioto Valley, Ohio.— Collected and presented by Mr. MILTON JONES.

30642 — 30650. Flint flakes and unfinished implements from about the earthworks near Highbank, Ohio; flint chips from the works at Milford, Ohio; flake and point from the surface at Sand Ridge and Newtown, Little Miami Valley, Ohio.— Collected by F. W. PUTNAM AND PARTY, and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

30651. Small earthen pot with four handles from the ancient cemetery at Madisonville, Ohio.— Collected and presented by Dr. C. L. METZ.

30652. Stone with two pits from Sinking Springs, Brush Creek Valley, Ohio.— Collected and presented by Mr. JAMES D. LOVETT.

30653 — 30671. Flint points and flakes and a broken stone ornament from Bainbridge, Ohio.— Collected and presented by Mr. C. D. LINDLEY.

30672. Carved stone (catlinite), from near Taylor's Falls, Minnesota, found at a depth of two and one-half feet from surface.— Collected and presented by Mr. D. G. SNOW.

30673 — 30675. Flint points and fragments of pottery from burial mounds near the effigy mounds on Remington's farm, Baraboo, Wis.— Collected by Mr. C. C. REMINGTON, and presented by Mrs. REMINGTON.

30676. Quartz knife from Minnesota.— Collected and presented by Miss ELLEN B. USHER.

30677. Fragments of pottery from Picture Cave near West Salem, Wis. — Collected and presented by Mr. E. B. USHER.

30678 — 30689. Fragments of pottery from Onalaska, Wis.; flint chips, a small arrowhead and pieces of pottery from the Sand Hills, La Crosse, Wis.; human bones, fragments of pottery, a stone drill and chips from a group of mounds in the park at La Crosse, Wis.— Collected by F. W. PUTNAM, and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

30690 — 30755. Portions of a pot and pieces of pottery, with scrapers, knives and arrowheads of flint; pieces of quartz and broken implements of the same, from a refuse heap on the Watauga river, Carter Co., Tennessee; polished celts of stone; chips and points of quartz and slate; fragments of pottery; piece of mica; a perfect earthen pot; grooved stone axes; human teeth; core and chipped points of obsidian, and a small polished celt of a green stone, from a burial cave on Holston River, near mouth of Beaver Creek, Sullivan Co., Tenn.— Collected by J. W. EMMERT, and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

30756. Cranium and portion of skeleton of Indian child, from Kansas. — Presented by the Museum of COMPARATIVE ZOOLOGY.

30757 — 30759. Fragments of tile, marble and fresco from Pompeii.— Presented by Mrs. ROMEO ELTON.

30760. Old Spanish olive jar.— Presented by Mrs. W. D. BOARDMAN.

30761—30818. Notched sinkers; stone pestles; hammerstones with and without pits; small grooved stones; flint flakes, a scraper of flint and flint points, together with pieces of a steatite pot and numerous fragments of pottery, from the banks of the Susquehanna river between Owego, N. Y. and Athens, Penn.— Collected and presented by Mr. ROBERT HOWELL.

30819—30836. Harpoon points of bone; fragments of pottery; chips and broken stone implements; worked bones and bones of beaver, deer and fishes, with pieces of deer antlers, from shellheaps near Damariscotta, Me.— Collected by Mr. FELLOWS KNOWLTON and presented by Mr. JAMES E. KNOWLTON.

30837—30954. Bone points of different shapes; handles of antler and worked points of same; chips, scrapers, and points of stone; fragments of pottery; hammer, rubbing and smoothing stones; celts and other stone implements; teeth of deer, beaver and bear, latter perforated; bones of birds, fishes and other animals, from different shellheaps on the main land, and on Fort and other Islands near Damariscotta, Maine; an iron spearpoint from the sod above the shells, and rude points from the surface on Fort Island; chips and stone implements, stone celts, fragments of pottery, bone points and worked bones; bears' teeth, different kinds of shells and bones from Hodgdon's Island, Damariscotta River, High Island, John's Bay near Pemaquid, and Hog Island opposite Keene's Point, Bremen, Maine; a stone celt and rude implements from the surface, Bailey's Point, Damariscotta River; also fragments of pottery and clay pipes, made by the whites in early times on Damariscove Island, Maine.— Collected and presented by Mr. A. T. GAMAGE.

30955—31107. Grooved stone axes and stone celts; two discoidal stones; hammerstones with and without finger pits; pieces of perforated stones; sharpening stones; fragments of pottery; stone hoes and spearpoints and knives, scrapers, drills and arrowheads, a large and varied collection in jasper and argillite from the surface, Trenton, N. J.; and a piece of worked antler, probably a handle to a stone knife, from the gravel in the railroad cut near where the human tooth (No. 27798) was found.— Collected and presented by Dr. C. C. ABBOTT.

31108—31125. Grooved stone axe, hammerstone, broken stone-tube with knives, spear points and arrowheads of different sizes and shapes from Trenton, N. J.— Collected and presented by RICHARD M. ABBOTT.

31126—31180. Fragments of pottery and of a clay pipe-stem, stone implements such as scrapers, drills, spearpoints and arrowheads of jasper and argillite from Somer's Point, Cape May Co., N. J.—Collected and presented by Dr. C. C. ABBOTT.

31181—31195. Grooved stone axe, pestle of the same material; hammerstones, fragments of pottery with spearpoints and arrowheads from Hightstown, Mercer Co., N. J.—Collected and presented by Mr. THOMAS J. PULLEN.

31196. Stone pipe, fig. 314 of Primitive Industry, from Isle of Wight Co., Va.— By PURCHASE.

31197—31301. A collection of grooved stone axes; celts, sinkers and hammerstones; drills, scrapers, knives, spearpoints and arrowheads in jasper and argillite from Jones river, Morgan's Branch, and other places in Kent Co., Delaware; stone celt, piece of steatite jar, stone knives and points, from the banks of the Susquehanna near Danville, Montour Co., Pa.; a notched stone sinker from Millersburg, Pa.; and fragments of pottery from shellheaps on Chincoteague Island, Accomac Co., Virginia.—Collected and presented by Mr. HENRY R. BENNETT.

31302—31303. Grooved stone, and a flat piece of stone, from a mound near Lindsborg, Kansas.—Collected and presented by Mr. J. A. UDDÉN.

31304—31306. Skeletons of three Sioux Indians, from Fort Stevenson, Dakota Ter.—Collected several years ago.

31307—31308. Cranium of Comanche Indian from a grave near Durango, Mexico, collected in 1848; and a piece of obsidian from Obsidian Bluff, Yellowstone Park.—Presented by Dr. A. E. HEIGHWAY.

31309—31315. Pieces of steatite pots, stone celt and points, with fragments of pottery from Granville county, N. Carolina.—Collected and presented by Mr. LEWIS CABOT.

31316—31350. Palæolithic implements of quartz found fifteen feet below the surface in the modified drift at Little Falls, Morrison Co., Minnesota. Included in this collection are the specimens exhibited at the Minneapolis meeting of the A. A. A. S.—Collected and presented by Miss FRANE E. BABBITT.

31351—31353. Quartz arrowpoint and stones of natural forms, believed to have been washed from the gravel at Little Falls, Minnesota, collected by Miss FRANE E. BABBITT; and a quartz scraper from Red Lake, Minn., collected by Rev. FRED SMITH, an Ojibwa Indian, who, however, knew nothing of the use of the implement.—Presented by Miss FRANE E. BABBITT.

31354—31375. A rubbing stone from banks of Neponset river, Milton Lower Mills, Mass., collected by Mr. F. A. BATES; small stone pestle, notched stone and rudely chipped implements of stone from Marshfield, Mass.—Collected and presented by Mr. G. B. FRAZAR.

31376—31378. Rude stone implements from Sand Ridge, Crescent Beach, Revere, Mass.—Collected and presented by Mr. A. I. PHELPS.

31379. Eight flint disks from the lot of 1500 found near Beardstown, Ill., and described in the Smithsonian report for 1876.—Presented by Dr. J. F. SNYDER.

31380—31425. Sea shells of different kinds, bones of deer, birds, fishes; tooth of beaver; fragments of pottery, and chipped stone implements from shellheaps on Hodgdon's Island, Damariscotta River, and on Hog Island, Bremen, Maine; also an iron point from the latter place.—Collected and presented by Mr. ALBERT I. PHELPS.

31426—31536. Fragments of pottery from the surface of a shellmound at Spear's Landing, Lake Monroe, Florida; a rude earthen cup from the outlet of Lake Monroe; stone flakes, chipped stones and rude implements, and scrapers, drills, knives and points of the same material forming the

largest collection of stone implements we have ever received from Florida, all from the shores of Lake Monroe.— Collected and presented by Mr. G. B. FRAZAR.

31537 — 31900. A large and valuable collection of earthen jars, dishes, bowls and tripods, some plain, others ornamented in relief and in colors, from the ancient burial places in Chiriqui, Panama.—Collected by Mr. J. A. MCNIEL and presented by THOMAS G. APPLETON, Esq., and Capt. NATHAN APPLETON.

31901 — 31903. Stone celts from ancient burial places in the Chiriqui district of Northern Panama.— Collected by Mr. J. A. MCNIEL and presented by Capt. NATHAN APPLETON.

31904 — 31968. Broken stone axe, flakes and chips of obsidian and chalcedony, arrowhead of obsidian and numerous fragments of pottery, plain and painted, from ruined Pueblos and other localities in New Mexico. —Collected by Mr. AD. F. BANDELIER and presented by the ARCHÆOLOGICAL INSTITUTE OF AMERICA.

31969 — 32004. Earthen jars and dishes plain and in the form of animals; bone implement; discoidal stone of quartz; shells and broken shell spoons; fragments of pottery, crania and other human bones from stone graves on Dr. Jarman's farm near Brentwood, Tenn.; broken stone implements and a disk of pottery from the surface near the same place.— Collected by Mr. GEO. WOODS and received from the SUBSCRIBERS OF THE RESEARCH FUND OF 1882–3.

32005 — 32025. Arrowheads and broken stone points, beads and fragments of pottery, picked up on the bluffs of Little Sioux river in northwestern Iowa.— Collected and presented by Prof. WM. O. CROSBY.

32026 — 32205. Celts, drills, hammers, points, chips and flakes of stone; ornaments of shell, bone and stone; awls and beads of bone, with worked pieces of the same; teeth of bear and beaver, some perforated, others sawed; copper awls in bone handles; scraper made from metatarsal bone of a deer; handles and worked pieces of antler; fragments of pottery; animal bones, burnt and split; carbonized beans; burnt shells with charcoal and ashes; turtle shells; and portions of about seventy human skeletons, from a mound on the farm of Mr. Samuel Edwards in the valley of the Little Miami in Anderson Township, Ohio.— Explorations by Dr. C. L. METZ and F. W. PUTNAM, received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

32206 — 32504. Human crania and other human bones, a few of which are of pathological interest; animal bones, some burned; teeth of beaver; fragments of steatite pots and of pottery; worked pieces of antler; shell beads and perforated shells; copper celt, bracelet, beads and other ornaments of copper, with rings of the same still encircling the finger bones; copper awl in a handle made of antler; cut pieces of mica; pieces of soft coal; specimens of the earth, burnt and unburnt, gravel, ashes, etc., of which the mounds were composed; tubular pipe of stone; a very varied assortment of stone implements and ornaments, such as axes, celts, pendants, gorgets, mullers, pestles, scrapers, knives, spearpoints and

arrowheads, together with hammer, sharpening and smoothing stones; all from several mounds in the Little Miami Valley. Also burnt human bones, copper earrings, a piece of antler carved to represent some animal, a large sea shell and many shell beads, from a niche in the stone wall surrounding the large altar mound of the Turner group; portions of two human skeletons, surrounded by sixteen human skulls; and a large sheet of mica, from an intrusive burial pit on the side of the same mound.—Explorations of F. W. PUTNAM and Dr. C. L. METZ, and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

32505 — 32555. Bone scraper, beads made of bird-bones, bone awls, and a fishhook made of bone, with teeth and bones of animals; a small cylinder and implements made of antler; shells, some of them perforated; a rude earthen cup about the size of a thimble, and fragments of pottery; smoothing and sharpening stones, together with drills, scrapers, knives, points and flakes of stone, all from the ashpits in the ancient cemetery at Madisonville, Ohio.—Collected and presented by Dr. C. L. METZ.

32556 — 32559. A stone drill and points from the banks of Bush Creek in Newbury Co., S. C.; and shell beads found with a piece of human cranium and teeth on the banks of Broad river in Richland Co., S. C.—Collected and presented by the Rev. JOHN HAWKINS.

32560 — 32590. Portions of a human skeleton and fragments of pottery, collected by F. W. PUTNAM; human crania; fragments of pottery; a brass bullet; stone axe, pestle and gorget, with a number of arrowheads, some of them rude and others unfinished, from an Indian burial place on the banks of the Connecticut river in Longmeadow, Mass.; fragments of steatite vessels, from Enfield, Mass.—Collected by Mr. W. B. LORD.—Received from the SUBSCRIBERS TO THE RESEARCH FUND for 1882–3.

32591 — 32834. A clay image representing a woman, from San Ramon, Nicaragua, presented by Mr. UGARTE; an earthen dish with three feet, from the surface, and a vase, a grinding stone and broken stone axe, also from the surface, presented by Mr. ABARCA; cover of a "Pebetera" from near Potosi, and arrowpoints from Rivas, presented by Mr. D. MALIANO; three small earthen jars, one a tripod, the others ornamented respectively with an animal form and a human face, and a large ornament of jade from a mound at Lamota, Costa Rica, presented by Mr. D. HURTADO; a dish with a hollow base from a shellheap, Culebra bay, presented by Mr. SEIRA; numerous large shoe-shaped burial jars, tripods, vases, cups, jars and dishes of pottery, variously ornamented in colors and with figures in relief; pottery whistles, one in the shape of a bird and one resembling an alligator; metates and grinding stones; portions of human crania and numerous fragments of human and animal bones; glass beads; two gold ornaments; beads and implements of shell; a piece of a gourd; obsidian points; notched sinkers of stone and pottery; sharpening, polishing and rubbing stones; ornaments of jadite; implements of iron; and celts, axes and flakes of stone, with a pendant and broken mortar of same material, from mounds and burying places in Nicaragua and Costa Rica, from different shellheaps in Costa Rica, and from the surface at different places

near Lake Nicaragua. — Collected by Dr. EARL FLINT and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

32835 — 32912. A round stone, a grooved stone axe and a celt, knives and numerous spearpoints and arrowheads of argillite and quartz, from Grafton Co., N. C.—Collected and presented by Mr. LEWIS CABOT.

32913 — 33148. Human skeletons, vessel of pottery and many potsherds; stone celts, arrowpoints and knives, ornaments and disks of stone; pieces of soft coal; ornaments made of shell; two fishhooks made of bone; points and other implements made of bones of deer, birds and antler; cylinders cut from antler; pieces of worked antler, fragments of scrapers made from deer-bones; perforated teeth of animals; bones of various animals; charred corn and charcoal, from an Indian burial place on the Little Miami River, Anderson Township, Ohio.— Explorations of Dr. C. L. METZ and F. W. PUTNAM, received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

33149 — 33150. Two large idols carved in basalt, representing human and animal forms, from Nicaragua.— Collected by Dr. EARL FLINT and received from the SUBSCRIBERS TO THE RESEARCH FUND OF 1882–3.

ADDITIONS TO THE LIBRARY.

Mr. J. C. Adams, Stockbridge, Wis. Pamphlet.

Mr. A. Agassiz, Cambridge, Mass. Pamphlet. Two Memoirs, ten numbers of Bulletin, one Report of Museum Comparative Zoölogy.

Athens, Greece. Société Archéologique. One number Proceedings.

Mr. E. A. Barber, Philadelphia, Pa. Two pamphlets.

Dr. W. C. Barrett, Buffalo, N. Y. Pamphlet.

Mr. Sylvester Baxter, Boston, Mass. Pamphlet.

Baron J. de Baye, Baye, Marne, France. Two pamphlets.

Berlin, Germany. Königlichen Museum. Four pamphlets.

Boston, Mass. Archæological Institute of America. Pamphlet, Report, one number Bulletin.

Boston, Mass. Museum of Fine Arts. Report.

Dr. Daniel G. Brinton, Philadelphia, Pa. Four volumes, one pamphlet.

Buffalo, N. Y. Buffalo Society Natural Sciences. Four volumes Bulletin.

Mr. J. H. Burnham, Bloomington, Ind. Pamphlet.

Cambridge, Eng. Cambridge Antiquarian Society. One number octavo publications, one volume Report and Communications, one pamphlet.

Cambridge, Mass. Harvard College Library. One volume, three numbers Bulletin.

Mr. Lucien Carr, Boston, Mass. One volume.

M. Emile Cartailhac, Toulouse, France. Two volumes.

Col. Theo. S. Case, Kansas City, Mo. Eleven numbers of Kansas City Review.

Dr. James R. Chadwick, Boston, Mass. Two volumes, three pamphlets.

Cincinnati, O. Cincinnati Museum Association. Two Reports.

Cincinnati, O. Cincinnati Society of Natural History. Four numbers of Journal.

Mr. E. W. Clark, Washington, D. C. One volume.

Mr. Robert Clarke, Cincinnati, O. One volume and pamphlet.

Cleveland, Ohio. Western Reserve and Northern Ohio Historical Society. Two numbers of Tracts.

Mr. G. S. Conover, Geneva, N. Y. Four papers.

Constantine, Algeria. Société Archéologique de la province (du département) de Constantine. One volume collection of Notices and Memoirs.

Prof. G. H. Cook, State Geologist, New Brunswick, N. J. One volume.

Davenport, Iowa. Davenport Academy Natural Sciences. One number Proceedings.

Mr. Andrew M. Davis, San Francisco, Cal. Pamphlet.

Prof. W. Boyd Dawkins, Manchester, Eng. Two pamphlets.

Prof. O. A. Derby, Rio Janerio, Brazil. One volume.

Mr. John B. Dunbar, Bloomfield, N. J. One volume.

Mr. S. Lowell Elliot, New York, N. Y. Five volumes.

Miss Alice C. Fletcher, Winnebago Agency, Neb. Pamphlet.

Dr. Robert Fletcher, Washington, D. C. Two pamphlets.

Firenze, Italy. Società Italiana di Antropologia e di Etnologia. Three parts Archivio.

Mr. Augustus W. Franks, London, Eng. Pamphlet.

Dr. Albert S. Gatschet, Washington, D. C. Nine pamphlets.

Genève, Switzerland. Société d'Histoire et d'Archéologie. One volume Mémoires et Documents.

Mr. H. L. Gordon, Minneapolis, Minn. One volume.

Dr. Samuel A. Green, Boston, Mass. One volume.

Dr. Horatio Hale, Clinton, Ontario. Two pamphlets.

Mr. R. G. Haliburton, Q. C. Ottawa, Can. Pamphlet.

Halifax, Nova Scotia. Nova Scotia Historical Society. One volume, Report and Collections.

Estate of Charles Hammond, as part of the Hammond collection. Five volumes, two pamphlets.

Mrs. George W. Hammond, Boston, Mass. Pamphlet.

Dr. Hamy, Paris, France. One number Revue d'Ethnographie.

Mr. Charles H. Hart, Philadelphia, Pa. Pamphlet.

Dr. F. H. Hooper, Boston, Mass. Pamphlet.

Dr. T. Sterry Hunt, Montreal, Canada. Five volumes.

Mr. Ernest Ingersoll, New Haven, Conn. Pamphlet.

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REPORT ON THE METEORIC IRON FROM THE ALTAR MOUNDS IN THE LITTLE MIAMI VALLEY, OHIO.

By Leonard P. Kinnicutt, D. Sc.

In the spring of 1883 the Curator of the Peabody Museum of American Archæology and Ethnology placed in my hands for examination certain specimens which had been "found on the altar of Mound No. 3 of the Turner Group of earthworks in the Little Miami Valley, Ohio."

These specimens included portions of two ornaments made of iron, several others covered or overlaid with iron, and some separate pieces which were thought to be either an ore of iron or, possibly, metallic iron.

These separate pieces were covered with cinders, small pieces of charcoal, pearls, broken ornaments made of shells and other materials which were firmly attached to the coating of iron oxide, showing that these pieces had been subjected to a comparatively high temperature. On removing this foreign matter it was found that these specimens consisted mainly of metallic iron, which was of a steel gray color and easily malleable. That this iron was obtained by the reduction of an ore of iron seemed at first most probable; still there was a possibility that it might be of meteoric origin and a careful investigation was consequently undertaken.

The first piece taken for this purpose was of an irregular cubical shape, weighing twenty-eight grams and was evidently a detached piece of some larger mass. It was thickly coated with oxide of iron, had in general the appearance of a specimen of limonite and could only with difficulty be cut or broken. The specific gravity was 6.42. A small piece perfectly freed from rust gave on analysis:

Insoluble residue	00.10 per cent
Iron	86.66
Nickel	12.67
Cobalt	00.33
Copper	Trace

A polished surface when etched gave well-marked Widmannstättian figures and at one corner small crystals of olivine and bronzite could be easily identified under the microscope. Traces of a third mineral could also be detected on the polished surface, the exact nature of which I have not as yet been able to determine.

The second specimen examined weighed fifty-two grams, was a square shaped piece and had evidently been hammered into its present form. Crystals of olivine could be easily detected enclosed within the iron. The specific gravity was found to be 6.51.

A piece of the iron thoroughly cleansed from rust gave on analysis:

Insoluble residue . . .	00.12 per cent
Iron	88.37
Nickel	10.90
Cobalt	00.44
Copper	Trace
Phosphorus	Trace

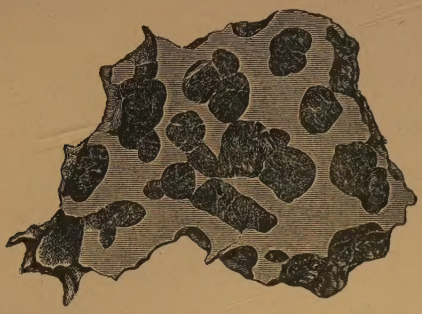
I did not consider it necessary to have a surface of this piece polished as its general characteristics were the same as those of the first specimen examined.

The remaining separate pieces of iron as well as the iron overlying the copper ornaments were now carefully examined and in each and every case the element nickel was shown to be present, and in most of the separate pieces crystals of olivine could be detected. This seems to prove conclusively that all the iron obtained from the mound was of meteoric origin, and in all probability portions of one large meteorite, which belongs, according to Daubrée's classification, to the Syssiderites.

Two months after receiving the specimens above described the Curator of the Museum placed in my hands a mass of iron weighing 767.5 grams which had been found "on the altar in Mound No. 4 of the Turner Group."

This mass consisted principally of metallic iron and olivine; the crystals of olivine have a diameter of 5 to 10 millimeters, and are enclosed within the iron. The specific gravity was found by Prof. Lattimore of Rochester, N. Y., to be 4.72.

A section of the stone was made and polished and the general appearance is shown by the following wood-cut. The dark portions showing the size and shape of the crystals of olivine, which were



of a dark green, weighing from 200 – 800 milligrammes and had a specific gravity of 3.33. An analysis of the olivine gave the following results.

SiO_2	. . . .	40.02 per cent
FeO	. . . .	14.06 " "
MnO	. . . .	0.10 " "
MgO	. . . .	45.60 " "

The iron which enclosed these crystals had a specific gravity of 7.894 and gave by J. Lawrence Smith's process of analyses:

Insoluble residue	. . . .	00.09
Iron	. . . .	89.00
Nickel	. . . . .	10.65
Cobalt	. . . . .	00.45
Copper	. . . .	Traces
Phosphorus	. . .	

A polished surface under the microscope showed, beside the crystals of olivine, small crystals of bronzite, which substance could also be easily detected by reflected light. Small quantities of schreibersite were also undoubtedly present as shown by the traces of phosphorus found in the analysis of the iron.

The specimen belongs to the class of meteorites known as pallasites and a section of it resembles more closely a section of the

Atakama stone than any other known pallasite. This resemblance was so marked that it seemed desirable to compare my results with the results obtained by the study of the Atakama pallasite.

Turner mound.			Atakama.	
Sp. gr. 4.72			———	
Olivine			Olivine[1]	
Sp. gr.	3.336		3.33	
SiO_2	40.02	per cent.	36.92	per cent.
FeO	14.06	" "	17.21	" " Fe_2O_3
MnO	00.10	" "	1.89	" " Mn_2O_3
MgO	45.60	" "	43.90	" "
Nickeliferous iron			Nickeliferous iron[2]	
Sp. gr.	7.894		7.44 – 7.66	
Insoluble residue	00.09	per cent.	———	
Fe	89.00		88.01	per cent.
Ni	10.65		10.25	
Co	00.45		00.70	
Cu	Trace		———	
Ph	Trace		00.33	
Na	———		00.21	
K	———		00.15	

The above comparisons seem to show, notwithstanding the outward resemblance, that the specimens from the mounds must be considered, for the present at least, as portions of a meteorite of which no other fragments are known.

[1] Schmid. Pogg. Anal., vol. 84, p. 501.
[2] Buchner. "Die Meteoriten," Giessen, 1859, page 195.

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